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### *Causes of Myopia.*

1. *Predisposing causes.*—The most common cause of myopia given by many writers is heredity, myopic parents being liable to have myopic children. This is only equivalent to stating that like breeds like, no intimation of the hereditary defect being stated. This may be a special weakness of the sclerotic to give way under pressure or to become affected by certain diseases. Again, the anatomical arrangements for preventing the distension of the eye may be defective. Rayner Batten[6] is of opinion that myopia is associated with high arterial tension in the young.

2. *Exciting causes.*—The first directly exciting causes of myopia are certain diseases, as measles, whooping-cough, and bronchitis. Whilst whooping-cough and bronchitis may produce their effects by an intermittent increase of intra-ocular pressure, measles may do this through diseases of the respiratory passages, or it may be that in measles a specific action is exerted on the sclerotic causing it to soften. The influence of measles in causing myopia is very clear and definite, and accounts for a large number of cases of non-progressive myopia. A boy may be wicket-keeper at his school and find on his return to school after an attack of measles that he has to give up cricket, not being able to see the ball at all. Numerous myopic persons were asked when the myopia was first noticed, if any increase were noticed at any time, and the occupation before, during, and after the onset or increase of myopia. It was then found that the onset or increase of myopia was associated definitely with certain occupations—namely, those involving heavy lifting in a stooping position, particularly in those who appear to take no other exercise, as, for instance, carters, who have at intervals to carry heavy weights. A boy will state that he had no trouble with his eyes until after he had left school; but in his employment, where he had continually to lift heavy boxes, he began to get more and more short-sighted. Then he will complain of a feeling of great tension in the eyes and headache after much lifting. The ordinarily given causes of myopia cannot apply in a large number of cases, as, for instance, porters, carmen, and those who do not use their eyes for near work. Again, in many of those having a sedentary occupation the form of exercise selected will be found to be one which would act in the way described, namely, boxing, wrestling, cycling, rowing, or digging. Coughing also appears to be a potent cause. A boy will state that there was nothing wrong with his eyes until he had a very bad attack of bronchitis; immediately on returning to school the master noticed that he was short-sighted and sent him to a doctor to be examined, and he was found to be myopic.

When anyone tries to lift a heavy box which is at the limit of his strength he experiences a great feeling of tension in the eyes; the fact that the intra-ocular tension has risen can be ascertained by palpating the eyes with the fingers. There is also a feeling as if fluid had been forced back into the eyes. When the eyes are closed in the dark a succession of violet-coloured circles appear to proceed from the periphery to the centre of the field of vision, break up, and then disappear. This appears to be due to a circulation of fluid in the inter-retinal space, that is to say, the space between the external limiting membrane of the retina and the pigment cells, in which the free ends of the rods and cones are situated. When a strong effort is made in the manner already described not only is this flow arrested, but a wave appears to pass outwards from the centre to the periphery accompanied by points of light.

[1] Jessop: Ophth. Surg. and Med., p. 434.
[2] Duane's translation of Fuchs, p. 765.
[3] American Encyclop. of Ophthal.
[4] Leader: Brit. Med. Jour., Sept. 27th, 1919, p. 420.
[5] British Journal of Ophthalmology, July, 1919.
[6] THE LANCET, 1891, i., pp. 980, 1035; Ophth. Rev., 1892, p. 1.

*Mechanism in the Production of Myopia.*

The eye is an organ which possesses only a slight degree of distensibility; it is kept distended by the intra-ocular pressure, which by the laws of hydrostatics is equal upon every part of the inner surface of the sclerotic and cornea. The elastic tension of the sclerotic is of great importance; only when the sclerotic is not strong enough to resist the internal pressure upon it does it stretch and produce myopia. The posterior portion of the sclerotic is a weak spot, just like the inguinal ring, which will give way on undue pressure. This is particularly likely to occur when the eye is soft and growing, but under great stress appears to occur at almost any age. The ophthalmic artery, a branch of the internal carotid, enters the orbit through the optic foramen, where it lies below and lateral to the optic nerve. Both the artery and vein of the retina pass to it through the optic nerve. The superior and inferior ophthalmic veins, either separately or united in one trunk, leave the orbit through the superior orbital fissure and empty into the cavernous sinus. The lymph passages of the eye are divided into anterior and posterior. The lymph of the anterior and posterior chambers enters Schlemm's canal, and through it the anterior ciliary veins, with which it is in direct communication. The posterior lymph passages are the hyaloid canal, which has its outlet in the lymph spaces of the optic nerve, and the perichoroidal space, which finds its outlet with the vessels that pass through the sclera, especially the venæ vorticosæ; there is also the inter-retinal space, where are situated the free ends of the rods and cones of the retina, which also communicates with the lymph spaces of the optic nerve.

Priestley Smith [7] states that very little lymph escaped by the posterior channels in his experiments, but as these were made on dead eyes there was cessation of activity in the very important inter-retinal and choroidal regions. The intra-ocular pressure varies with the arterial pressure, but Henderson and Starling [8] showed that there was a control mechanism of considerable efficiency for regulating the intra-ocular pressure. Whereas the arterial pressure varied between 70 and 180 mm. of mercury in the experiments which were made, the intra-ocular pressure only varied between 23 and 40 mm. Hill and Flack [9] find that the pressure of the aqueous fluid depends primarily on the secretion pressure. The secretory cells regulate its amount, the capillary venous pressure adjusts itself to the secretion pressure, needing to be, and being, only the least degree above it in order that the circulation may continue. Obstruction of the venous return raises the capillary-venous pressure and the pressure of the aqueous fluid rises equally with the capillary-venous pressure, the capillaries being supported by the counterbalancing pressure of the aqueous fluid. Rise of arterial pressure, if it raises the capillary-venous pressure in the eye, causes a corresponding rise of aqueous fluid pressure; here again the fluid pressure counterbalances that in the capillaries. If the aqueous pressure be raised by injecting fluid under a higher pressure into the eye the capillary-venous pressure rises *pari passu* until the arterial pressure is reached; the circulation then stops, the vessels being compressed.

If the aqueous fluid be allowed to escape and the belly be squeezed, the capillary-venous vessels in the iris burst and hæmorrhage takes place into the anterior chamber, because the aqueous pressure no longer counterbalances the capillary-venous pressure. Filtration of aqueous fluid does not occur, because the pressure of the aqueous and the capillary-venous pressure are practically the same. Hill has recently measured the normal capillary pressure and finds it to be about 1·3 cm. of water. It will be noticed that the intra-ocular pressure rises both when the arterial pressure is increased and when the capillary-venous pressure is increased. Whether the eye will stretch or not when both occur together depends upon the power of the sclerotic to resist the increased pressure. When this is sufficient, myopia will not be produced. Any supposed increase of pressure caused by the muscles of the eye in convergence is very trivial compared with that caused by lifting a heavy weight.

*Detachment of the Retina.*

The retina corresponds to a membrane in a hydrodynamic system; it is attached only at the optic nerve and ora serrata. The choroidal vessels, lymphatics, and veins, and the important inter-retinal space, are separated by it from the vitreous. When fluid is forced into the inter-retinal space or choroidal spaces, it will detach the retina if the anterior pressure be less than the posterior pressure, so that fluid can escape by the anterior outlets. If the anterior pressure be equal to the posterior pressure, then the retina will be supported, and the only part to stretch will be the sclerotic; myopia will thus be produced, if its elasticity be insufficient to enable it to regain its former position. It will be noticed on examining a myopic eye that the enlargement corresponds to the posterior portion behind the retina. The pressure in the arteries, veins, and capillaries is always higher than the intra-ocular pressure and any adjustment by the secretory cells (or by filtration, if that hypothesis be preferred) cannot be effected instantaneously.

*Compression of the Eyeball during Effort.*

We can take as typical of effort causing myopia the case of a man trying to lift a heavy weight from the ground. His breath is held and the veins of his neck are seen to stand out, showing the obstruction to the flow of blood to the heart; this obstruction is aided by gravity. The remarks of Bell [10] are interesting in this connexion. He states with regard to the protective action of the orbicularis:—

> "During every violent act of expiration, whether in hearty laughter, weeping, coughing, or sneezing, the eyeball is firmly compressed by the fibres of the orbicularis, and this is a provision for supporting and defending the vascular system of the interior of the eye from a retrograde impulse communicated to the blood in the veins at that time. When we contract the chest and expel the air there is retardation of the blood in the veins of the neck and head, and in the more powerful acts of expulsion the blood not only distends the vessels, but is even regurgitated into the minute branches. Were the eye not properly compressed at that time, and a resistance given to the shock, irreparable injury might be inflicted on the delicate textures of the interior of the eye. If we separate the eyelids of a child to examine the eye while it cries and struggles with passion, by taking off the natural support to the vascular system of the eye, and means of guarding it against the rush of blood then occurring, the conjunctiva becomes suddenly filled with blood and the eyelids everted."

Darwin [11] makes several allusions to these remarks by Bell, and expresses surprise at not finding that men closed their eyes when lifting heavy weights. As a matter of fact, many people do close their eyes when making a severe effort of this kind.

It will be noticed that in lifting or coughing the heart beats more quickly and the arterial pressure is raised, thus increasing the intra-ocular pressure; there is back pressure on the veins and lymphatic outlets, which also raises the intra-ocular pressure; the eye being situated between these two pressures, the resistance of the sclerotic is opposed to the resultant increased internal pressure. The conditions are quite different from those existing in glaucoma, where pressure is more or less constant; in coughing, on the other hand, the pressure is intermittent, and, as in lifting, the lamina cribrosa is supported by the fluid pressure in the lymphatic spaces in the optic nerve. In lifting, the primary cause of increase of pressure is circulatory, which is not the case in glaucoma. The obstruction to the posterior lymphatic channels appears to be the chief cause in the production of myopia.

[7] Ophthalmic Review, July, 1888, p. 197.
[8] The Influence of Changes in the Intra-ocular Circulation on the Intra-ocular Pressure, Jour. of Phys., vol. xxxi., 5, 1904, p. 305. The Factors which Determine the Production of Intra-ocular Fluid, Proceedings Roy. Soc., B, vol. lxxvii., 1906, p. 294.
[9] The Relation Between Capillary Pressure and Secretion, Proceedings Roy. Soc., B, vol. lxxxv., 1912.
[10] Anatomy of Expression, 1847, p. 105.
[11] Expression of the Emotions, 1872.

*Production of Myopia by Various Means.*

The following case illustrates the production of myopia: A man staying at a farm had to help to hold a bull which had become wild, and he had to exert his strength to the utmost; he ruptured himself, became myopic to a low degree and blind in one eye through detachment of the retina in the one afternoon; he stated that he had previously very good sight. Though such a disastrous result is fortunately very rare, this case admirably illustrates the causation of myopia, and had the increase been very slight might easily have passed unnoticed.

When it is considered that an increase of 1 mm. in the antero-posterior axis of the eye corresponds to three dioptres of myopia, it will be seen that very little stretching is necessary in order to produce a perceptible amount of myopia. Numerous cases could be given of myopia and detachment of the retina through whooping-cough. A young musician with low myopia, in indifferent health, was advised to take a rest and spend a year on a farm. He found that digging caused him great pain in the eyes, headache, and bleeding at the nose. His myopia rapidly increased, although he had no previous discomfort with his eyes in musical work.

*Prevention of Myopia.*

The recommendations which have been made by ophthalmic surgeons—namely, to avoid reading and writing in a stooping position, good lighting, ventilation, and other hygienic conditions—are advisable, but they do not seem to produce much effect in the prevention of myopia. Many myopes have the strongest objection to reading or writing in a stooping position. In diseases which produce myopia, such as measles and whooping-cough, special care should be taken of the eyes, particularly in those with a hereditary tendency to myopia. In measles the light should be arranged so that the child does not point its eyes downwards, and the head should be raised as much as possible. During convalescence exercises should be carefully regulated; those forms which raise intra-ocular pressure, particularly when associated with back pressure, should be avoided. It is probable that the sclerotic, like other parts of the body, can be strengthened by suitable exercises.

In the training of children in whom the eye is growing, when the coats of the eye are much softer than in the adult, those exercises which cause pressure and lead to myopia should be avoided. For instance, that exercise in which the child is prone and raises itself up and down on its hands, with its eyes pointing downwards, should be abolished. The student who takes his exercise very intermittently should particularly avoid those forms which produce increased tension in the eye, such, for instance, as riding up steep hills and bending forward when cycling, using dumb-bells and lifting heavy weights. If a rapid increase in the myopia in a short-sighted person is coincident with his cycling, the latter activity had better be given up.

Any occupation which involves heavy lifting is not suitable for a myopic. It is particularly in those who have sedentary occupations, who are not in fit physical condition, and who have a hereditary tendency to myopia, that these forms of exercise should be avoided. Careful regulation of exercises, especially in the debilitated, is necessary. There are exercises very easy for some children which can only be accomplished with great strain by others. If, for instance, a child can only with the greatest difficulty and pain in the abdomen raise itself on a bar, that exercise should be forbidden it. Exercises found to cause a feeling of pain and tension in the eyes in the child or adult should be strictly forbidden.

In conclusion, all exercises should be performed as far as possible in the erect position, with the eyes pointing forwards. The ordinary games and sports, like cricket, tennis, running, and archery, are beneficial, and do not cause myopia. Standing erect and swinging light Indian clubs is a very useful form of exercise for people with sedentary occupations. Boxing is not suitable for them; many boxers develop myopia. In myopic children special exercises can be devised so that every muscle may be developed without causing an increase in the myopia.

SOME

# SEQUELS OF CONGENITAL SYPHILIS.*

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IN opening a discussion on the diagnosis and treatment of congenital syphilis the ground to be covered is so wide that my remarks must be confined almost entirely to diagnosis, and further, omitting any reference to the more familiar manifestations, I would suggest the following points for your consideration:—

(A) The limits of the Wassermann reaction as a means of diagnosis.

(B) The influence of congenital syphilis (1) in favouring the onset of other infections; (2) in leading to changes in the endocrine glands and so indirectly to syndromes which are not necessarily specific; (3) in relation to diseases or syndromes which are not generally regarded as due to syphilis and are not obviously secondary to lesions of the endocrine glands.

(A) *The Limits of the Wassermann Reaction as a Means of Diagnosis.*

The Wassermann reaction is of course of the greatest importance in the diagnosis of congenital syphilis. McIntosh and Fildes[1] point out that a positive reaction at birth does not certainly imply the presence of syphilis, since, according to Boas, the reacting substance may have passed from the mother to the child in utero; otherwise, with certain exceptions, which hardly come into practical politics, a positive Wassermann reaction indicates the presence of living spirochætes and the need for antisyphilitic treatment. But the converse does not hold good, for the exceptions are both more numerous and real, and the practical question is in what circumstances should we hesitate to accept a negative Wassermann reaction as evidence that syphilitic infection is absent and that antiluetic treatment is entirely unnecessary? In the first place, it will be remembered that the Wassermann reaction may be negative for some weeks in a new-born infant and then become positive, just as in acquired syphilis the reaction does not become positive until about six weeks after infection. In the second place, the reaction tends to become negative about puberty, and the disappearance of a positive reaction does not mean that the patient's body is free from spirochætes; Warthin[2] has proved that spirochætes are present in a considerable proportion of patients with a negative Wassermann reaction during life, and believes that many of these are congenital in origin. At the Bellevue Hospital, New York, Symmers, Darlington, and Bittman[3] found that the Wassermann reaction was negative in 31 to 56 per cent., according to the antigen employed, of cases showing characteristic syphilitic lesion at necropsy; many of these, however, may have been obsolete. To determine in a given case whether a negative Wassermann reaction means that the infection has entirely died out or is merely latent and not causing the production of antibodies, a provocative injection of neo-salvarsan is often appealed to; and a point on which further information and discussion may be welcomed is how far this test, when the reaction becomes positive, should be relied on. Is the dose of salvarsan truly provocative, or is the interpretation of a latent Wassermann reaction in some way erroneous? The observations of Strickler, Musson, and Sidlick,[4] that intravenous injections of salvarsan into non-syphilitic patients with a previously negative Wassermann reaction are followed in more than half the cases by a positive reaction, suggest that

* Being introductory to a discussion on the Diagnosis and Treatment of Congenital Syphilis at a meeting of the Section for the Study of Disease in Children, Royal Society of Medicine, on Feb. 25th, 1921.

[1] McIntosh and Fildes: Syphilis from the Modern Standpoint, p. 141, 1911.

[2] Warthin, A. S.: Amer. Jour. Med. Sc., Phila, 1916, cliii., 508.

[3] D. Symmers, C. G. Darlington, and H. Bittman: Jour. Amer. Med. Assoc., Chicago, 1918, lxx., 279.

[4] Strickler, Musson, and Sidlick: Jour. Amer. Med. Assoc., 1920, lxxv., 1488.

there may be a fallacy in the conception of the provocative dose.

Syphilitic infection after severely damaging an organ may die down or out, and although its past effects are obvious it is no longer the active factor, for the symptoms depend on changes which are now more or less stationary. In such cases if the Wassermann reaction is negative, it might be logically argued that antisyphilitic treatment is unnecessary, therapeutic measures being needed to counteract the effect of the lesions originally due to syphilis but now responsible for the dystrophies. The conditions thus referred to are insufficiency of the glands of internal secretion and of the blood-forming organs. But is a negative Wassermann reaction of the blood to be regarded as final evidence that antisyphilitic treatment is quite unnecessary and that the possibility of further activity of spirochætes, possibly in the endocrine glands already affected, can be ignored? There are cases with the stigmata of congenital syphilis and a negative Wassermann reaction in which dystrophies and other lesions are cured by antisyphilitic treatment.

In an article on congenital syphilis in orthopædic clinics Roberts[5] records 226 cases of very various kinds, especially arthritis simulating tuberculous infection, all of which presented some evidence of congenital syphilis and responded to antisyphilitic treatment. The Wassermann reaction, however, was carried out in only 47 of the bone and joint cases, but negative results were obtained in cases with a positive family history and in some which recovered under mercury and iodide of potassium.

It therefore appears that at the present time it is impossible to accept as absolute the proposition that in the presence of syphilitic stigmata a negative blood Wassermann eliminates the possibility of existing syphilitic infection.

It is, of course, well recognised that in cerebro-spinal syphilis the Wassermann though positive in the cerebro-spinal fluid may be negative in the blood; it may be mentioned here that from examination of 214 infants and children with congenital syphilis Jeans[6] has shown that the cerebro-spinal fluid shows evidence of infection of the central nervous system in 33 per cent., or as frequently as in acquired syphilis; but in only one instance was the Wassermann reaction positive in the cerebro-spinal fluid and negative in the blood. It would be interesting to have further information about the Wassermann reaction in the cerebro-spinal fluid, as well as in the blood in cases of syphilitic disease of the pituitary. It seems reasonable to believe that syphilis of this intracranial endocrine gland might be associated with a positive reaction in the cerebro-spinal fluid and a negative reaction in the blood, and that the syphilitic origin of some cases of pituitary dystrophies, such as Fröhlich's adiposo-genital syndrome, some forms of obesity, gigantism, and diabetes insipidus, may be missed if the blood Wassermann only is investigated.

In dystrophies which may be due, in a secondary and delayed manner, to the effects of syphilis, but may equally be a legacy from the influence of other infections, on the pituitary, thyroid, testes, or other endocrine glands, the presence of a positive Wassermann reaction in the blood would be a very definite indication for antisyphilitic treatment, though it should not put into the background the obvious need for pituitary, thyroid, or some other or combined form of endocrine medication in addition. And in the absence of a positive blood Wassermann reaction the presence of stigmata of congenital syphilis should point to the advisability of antisyphilitic treatment, as was the custom in the pre-Wassermann days. But when there is an absence of these stigmata and the Wassermann reaction in the blood is negative, even after a provocative dose, does this mean that the participation of syphilis can always be so absolutely ruled out that antiluetic treatment is as unnecessary as it might appear to be illogical? Or is it better to take the view that in the absence of any evidence from the history or from physical examination of a past infection of another kind, such as severe enteric, measles, or scarlet fever, antisyphilitic treatment should be tried both with the object of benefiting the patient and as a therapeutic test to determine whether or not syphilis is in some degree responsible for the dystrophy. But it should be borne in mind that this appeal to the therapeutic test is not devoid of fallacy, for quite apart from their antisyphilitic effect the drugs may improve the patient's condition; iodides stimulate the thyroid, and so would counteract hypothyroidism however induced, and arsenic is a powerful tonic, especially to the blood-forming organs.

(B) *The Influence of Syphilis.*

(1) *Congenital syphilis as a disposing factor to other infections.*—It is important to bear this factor in mind, for otherwise in making a diagnosis the exciting cause—for example, a streptococcic or pneumococcic infection—when established may entirely put into the shade the disposing factor of congenital syphilis. An acute infection falling on a liver with the unicellular cirrhosis of congenital syphilis may imitate acute yellow atrophy. Hæmorrhagic disease of new-born infants may probably be due to several infections, and as the treatment by adrenalin is often beneficial, and as the adrenals are usually severely affected in these cases, it is not improbable that there is an acute infective adrenal insufficiency. Infants with congenital syphilis may be attacked—the term syphilis hæmorrhagica neonatorum has indeed been employed—and the adrenals are very frequently—next after the liver, it is stated—invaded by the spirochæte in congenital syphilis. Hence syphilis may reasonably be regarded as a disposing factor. But from its rarity hæmorrhagic disease of the new-born would appear to require some factor other than congenital syphilis, and it seems probable that this is bacterial infection for which the spirochætal invasion prepares the way. It is not, however, suggested that congenital syphilis usually underlies hæmorrhagic disease of the new-born.

Syphilis, by reducing resistance, paves the way to secondary infections of a chronic character, and so renders the treatment of the resulting disease more complex. Tuberculosis of lymphatic glands in a syphilitic subject may thus be explained, and perhaps also by the additional factor of hypothyroidism of syphilitic origin. Cases of this mixed infection have possibly often been unconsciously benefited by the old-fashioned application of tincture of iodine. The combination of pulmonary tuberculosis and syphilis concerns the acquired much more than the inherited disease.

(2) *The influence of syphilis in leading to lesions of the endocrine glands, and so indirectly to syndromes which are not necessarily specific.*—Opinion as to the importance of endocrine infections in the malnutrition, infantilism, and senilism seen in congenital syphilis is gaining ground. It would, indeed, be remarkable if the ductless glands escaped syphilisation. In most instances several of them are probably affected, and it must be remembered that when one endocrine gland is damaged the others tend to undergo change, and in the presence of a polyglandular insufficiency an exact diagnosis becomes more difficult. The adrenals, pituitary, and testes are the endocrine glands most often structurally damaged in congenital syphilis. Addison's disease, however, is very rarely thus caused; though no doubt minor degrees of adrenal insufficiency, or Addisonism as the French call it, as shown by want of vigour and muscular power, low blood pressure, and some pigmentation of the skin, would be not uncommonly noted if specially looked for. The pituitary, which may be invaded by continuity in syphilitic meningitis as well as by hæmic infection, appears to be more often affected in congenital than in acquired syphilis. Fröhlich's adiposo-genital dystrophy, adiposity, diabetes insipidus, and infantilism, may thus be explained: further, it may be pointed out that at a meeting of this section some four years ago Dr. F. Langmead[7] quoted three recent examples of pituitary insufficiency in congenital syphilis. Hypopituitarism probably also plays

[5] Roberts: Amer. Jour. Syphilis, 1919, iii., 587.
[6] Jeans, P. C.: Amer. Jour. Child. Dis., Chicago, 1919, xviii., 173.
[7] Langmead: Proc. Roy. Soc. Med., 1916-17 x. (Child. Sect.), 25.

a part in a number of polyglandular syndromes; but the pituitary is only one of the endocrine glands deficiency of which is concerned with the causation of infantilism.

The condition of the testes in congenital syphilis has recently been investigated by Sir Frederick Mott,[8] who strongly suggests that not only may they be invaded by the spironeme but that chronic spirochætal intoxication may depress their vital energy. Infantilism is common in congenital syphilis, may be associated with juvenile general paralysis of the insane, and is correlated with the disappearance of the interstitial cells of the testes. The thyroid is not so often attacked by congenital syphilis as is the pituitary, and myxœdema is rare in children with congenital syphilis. Slighter degrees of thyroid insufficiency are not so uncommon. In a few instances exophthalmic goitre has been ascribed to disordered thyroid activity caused by congenital syphilis—for example, Hutinel and Stévenin[9] refer to a case improved by injections of perchloride of mercury and adrenalin.

The group of cases of *diabetes insipidus associated with infantilism* may well be regarded as a polyglandular syndrome, the diabetes insipidus being due to insufficiency of the pars intermedia and posterior lobe of the pituitary, and the infantilism either to the same lesion or to damage done to the interstitial cells of the testis, or possibly to implication of other endocrine glands. The occurrence of diabetes insipidus as a result of syphilis is well known, and its improvement after antisyphilitic treatment has been recorded (Schulmann and Desoutter[10]). It would be interesting to know what proportion of the cases of pluriglandular insufficiency causing diabetes insipidus and infantilism are due to congenital syphilis. As Parkes Weber[11] points out, two groups of polyuria in children may be recognised, viz.: (1) diabetes insipidus (without renal disease) associated with infantilism, which is less rare than (2) polyuria due to chronic interstitial nephritis with some degree of infantilism (more recently called renal dwarfism).

Obesity of endocrine origin is a complicated problem, for it may be associated with insufficiency of several individual glands or be pluriglandular in origin. Fröhlich's adiposo-genital dystrophy has been referred to as a manifestation of hypopituitarism, thyroid obesity is familiar, and so also is that due to insufficiency of the genital glands. Cushing[12] in 1912 considered the hypopituitary form to be the most frequent. These insufficiencies may be due to various factors, and among the infections congenital syphilis must be remembered. Lipodystrophic progressiva is thought to be an endocrine affection (F. P. Weber[13]), but except that thyroid medication has proved unsuccessful, and that it mainly attacks females, there does not appear to be any evidence as to the glands involved. In the 21 cases quoted by Parkes Weber the Wassermann reaction is mentioned in one instance only, in the daughter of a syphilitic father, and then was negative.

Another problem of even greater difficulty is how far, if at all, by impairing the activity of those endocrine glands—the pituitary, thyroid, parathyroid, and the thymus—that influence skeletal growth, congenital syphilis may be responsible for certain obscure diseases of bone, such as achondroplasia, osteogenesis imperfecta, oxycephaly, and cleido-cranial dysostosis. For in the first place there is but little proof that in these diseases the skeletal changes depend on endocrine disorder, though Baumel and Margarot[14] suggested that the first two are due to partial insufficiency of the anterior lobe of the pituitary; and in the second place the association of these diseases with congenital syphilis has been very seldom noted. Although the pancreas may show a diffuse syphilitic infiltration in congenital syphilis, it is remarkable that diabetes mellitus is extremely seldom, if ever, established as a sequel. It is true that the islands of Langerhans are not involved, but it would not have been surprising had they subsequently become affected. It has been urged by Hutinel that endocrine disorders due to syphilis in one generation may lead to dystrophies in the next generation, but in this event it would appear that syphilitic infection is not necessarily transmitted as well, and antisyphilitic treatment is therefore not required.

(3) *The influence of congenital syphilis in relation to various deseases which are not generally regarded as due to syphilis, and are not obviously due to lesions of the endocrine glands.*—The consideration of the diseases in this group chiefly bears on the estimation of the wide influence of syphilis and the need for early and preventive treatment, for though antisyphilitic treatment of the conditions when established may prevent further progress, a cure is beyond expectation.

*Chronic interstitial nephritis in early life.*—In pre-Wassermann days this condition was thought to be more closely related to congenital syphilis than it is now, though it was never regarded as solely due to this cause. Guthrie[15] (1897), Payne[16] (1900), and Sawyer[17] (1906), all supported the view that congenital syphilis was a cause of chronic interstitial nephritis. Nettleship[18] pointed out that both interstitial keratitis and chronic interstitial nephritis were commoner in girls than in boys, whereas taking 130 cases of chronic parenchymatous nephritis under the age of 13 years the incidence in boys (54 per cent.) was only slightly higher than in girls (46 per cent.); he therefore raised the question whether the female excess of chronic interstitial nephritis could be due to a larger number of girls born with syphilis. There are several ways in which congenital syphilis might be thought to lead to chronic interstitial nephritis: (*a*) The diffuse small-celled infiltration might either advance to fibrosis or while disappearing leave behind a diminished resistance which, as in the case of the liver, would enable other factors to act at a great advantage in inducing interstitial change. (*b*) The widespread arterial change due to congenital syphilis, which in extreme cases may obliterate the pulse in the limbs, might produce an arterio-sclerotic kidney. (*c*) Indirectly, by damaging the thyroid and possibly other glands of internal secretion, congenital syphilis might, after it had died out so that the Wassermann reaction had become negative, cause so much metabolic disturbance as to lead to chronic interstitial nephritis. This is perhaps rather a vague and speculative pathology, but it seems to have a bearing on the cases of renal infantilism or dwarfism associated with bony changes, described by Morley Fletcher,[19] Miller,[20] Parsons,[21] Barber,[22] D. H. Paterson,[23] and others. In these cases the Wassermann reaction in the blood was negative and so syphilis could not logically be incriminated; it is, however, possible that in some instances it may indirectly, as suggested above, have been the starting point of the renal and bone lesions, mainly through its effects on the thyroid, parathyroids, and pituitary, and of the infantilism, partly at any rate, by changes in the interstitial cells of the testes.

If there is any reason to regard a case of renal disease as syphilitic, mercurial treatment should, if employed at all, be very carefully watched, as it is often badly borne; it is indeed recommended that salvarsan preparations should be used instead.

Multilobular or *portal cirrhosis* in young children may no doubt be due to various causes other than syphilis. In the familial disease progressive lenticular degeneration S. A. K. Wilson rejected syphilis, though Homén and Yokoyama and Fischer took the opposite

[8] Mott: Brit. Med. Jour., 1919, ii., 739.
[9] Hutinel et Stévenin: Arch. des mal. des enf., Paris, 1920, xxiii., 150.
[10] Schulmann et Desoutter: Rev. de méd., Paris, 1920, xxxvii., 441.
[11] Weber, F. P.: Brit. Jour. Child. Dis., 1912, ix., 211.
[12] Cushing: The Pituitary Body and its Disorders, p. 258, 1912.
[13] Weber, F. P.: Quart. Jour. Med., Oxford, 1916–17, x., 135.
[14] Baumel et Margarot: Nouv. iconogr. de la Salpêt., Paris, 1918, xxvi., 202.
[15] Guthrie, L. G.: THE LANCET, 1897, i., 585.
[16] Payne, J. F.: Trans. Path. Soc., London, 1900, li., 366.
[17] Sawyer, J. F. H.: St. Thomas's Hosp. Rep., 1906, N.S. xxxv., 459.
[18] Nettleship, E.: Rep. Roy. Lond. Ophth. Hosp., 1906, xvi., 1.
[19] Morley Fletcher: Proc. Roy. Soc. Med., 1911 (Sect. Dis. Child.), iv., 95.
[20] Miller, R. H.: Proc. Roy. Soc. Med., 1912 (Sect. Dis. Child.), v., 38.
[21] Parsons, L.: Brit. Med. Jour., 1911, ii., 481.
[22] Barber, H.: THE LANCET, 1918, i., 142; 1920, i., 18.
[23] Paterson, D. H.: Proc. Roy. Soc. Med., 1920, xiii. (Sect. Dis. Child.), 107.

view. Other cases may be due to the poisons of infectious diseases, or to dietetic errors or precocious alcoholism. There certainly are cases of children with stigmata of congenital syphilis whose livers show ordinary portal cirrhosis, and in these the view may be taken that the diffuse intercellular cirrhosis has disappeared, but left behind it some vulnerability or diminished resistance of the liver, so that factors causing cirrhosis will readily produce this effect. In other words, that the cirrhosis is parasyphilitic in the sense that tabes and general paralysis of the insane were thought to be until they were shown to be due to the presence of spirochætes and examples of parenchymatous syphilis. I do not know of any demonstration of the *Spirochæta pallida* in the liver of portal cirrhosis in children, and the question arises whether or not in the absence of a positive Wassermann reaction in the blood anti-syphilitic treatment is advisable. There are two minor arguments in favour of adopting this course (1) since the advent of the Wassermann reaction the high incidence of a positive result in the cirrhosis of adults has suggested that ordinary portal cirrhosis may be a result of syphilitic infection (Symmers,[24] Letulle); and (2) that in the past a number of cases regarded as cirrhosis have recovered after antisyphilitic treatment; although this result is often regarded as evidence that the diagnosis of cirrhosis was wrong and that there really was gummatous disease of the liver, it is possible that the treatment arrested the progress of a true syphilitic portal cirrhosis. Hanot's hypertrophic biliary cirrhosis is so rare that its existence, apart from aberrant forms of portal cirrhosis, has aroused a good deal of criticism. Congenital syphilitic disease of the liver and spleen can undoubtedly imitate its clinical manifestations, but a question for discussion is whether by symbiosis or merely by weakening the vital resistance congenital syphilis may be responsible for some of the cases.

*Chronic peritonitis.*—Just as Letulle[25] brings forward evidence, mainly from a positive Wassermann reaction, that chronic peritonitis is frequently due to acquired syphilis, so Castex and Dell Valle[26] argue that chronic pericolitis with adhesions and peri-enteritis causing chronic abdominal symptoms or the condition described by Lane, Jackson, and Wilms is a late result of congenital syphilis, and they report cases responding to antisyphilitic treatment mainly by mercury. The pathogeny is described as complex and due to several factors; there may be defects in the intestinal walls developmental and due to endocrine glands, especially the thyroid, and in addition the adrenals damaged by syphilis, and further, the endocrine defects may through the nervous system cause intestinal stasis and so colitis and pericolitis. Chronic perivisceritis was previously regarded by the French school as syphilitic.

*Anæmia.*—By its effect on the blood-forming organs, in addition to its apparently hæmolytic influence, syphilis is a potent cause of anæmia in early life, and probably many forms may thus be produced. Syphilis, however, should be regarded as one only of the factors in infantile anæmia and not as an exclusive cause of any one form. Hutinel and Stévenin regard von Jaksch's anæmia pseudo-leukæmica infantum as usually, if not entirely, due to congenital syphilis, but this view would appear to be extreme. In a few cases congenital hæmolytic jaundice is associated with syphilis, and a causal relation is suggested by the known association of paroxysmal hæmoglobinuria and syphilis.

*Mitral stenosis* has been thought to be a malformation due to the influence of congenital syphilis, but it might also be argued that it is due to chronic endocarditis comparable to the obliterating endarteritis sometimes seen to an extreme degree in late congenital syphilis. Cowan and Fleming[27] have made out a good case for the syphilitic origin of, at any rate, some examples of combined mitral stenosis and granular kidneys. Queyrat[28] describes absence of the xiphoid appendix of the sternum as a sign of congenital syphilis and notes its frequent association with pure mitral stenosis.

*Rickets.*—Parrot's view that rickets is entirely due to congenital syphilis has never been accepted in this country, and at the present time is particularly, in the light of work on vitamines, unlikely to receive support; but in France it has been sustained with modifications. A. Fournier regarded rickets as a parasyphilitic affection and disposed to by syphilis, and Marfan considers that syphilis is a factor but not an exclusive factor, and gives the following characteristics of syphilitic rickets: (1) onset within four months of birth; (2) prominence of the cranial lesions, craniotabes, natiform skull, dilated veins; (3) well-marked anæmia; (4) chronic splenic enlargement. Hutinel and Stévenin associate severe rickets accompanied by anæmia with syphilis, and bring in endocrine affections as the connecting link between congenital syphilis and rickets. Thus, syphilis, by its influence on the endocrine glands and the viscera, modifies nutrition, damages the skeleton, and sensitises the bones to the true exciting factors of rickets.

*Congenital malformations* may occur in the subjects of congenital syphilis, and the question arises how far the intra-uterine activity of congenital syphilis is a cause of these defects. That it is not an exclusive cause everyone would agree, but it is possible that in this country the causal factor of congenital syphilis has been underestimated. Edmond Fournier[29] describes a large number of malformations in congenital syphilis.

[24] Symmers D.: Jour. Amer. Med. Assoc., Chicago, 1916, lxvi., 1457
[25] Letulle: Presse méd., Paris, 1918, 477.
[26] Castex and Del Valle: Surg., Gyn., and Obst., 1920, xxxi., 160.
[27] Cowan and Fleming: Quart. Jour. Med., Oxford, 1911-12, v., 315.
[28] Queyrat: Bull. et mém. Soc. méd. des hôp. de Par., 1919, 3e sér., xliii., 1015.
[29] Fournier, E.: L'Hérédo-syphilis tardive, 1907.

# NUTRITION IN VIENNA:

## A STUDY OF THE FOOD-SUPPLY AND STATE OF NUTRITION OF THE WORKING CLASSES IN VIENNA.

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EVERYONE is aware that since the later years of the war the food-supply of Vienna has been inadequate for the population, and that the lower and middle classes are suffering from under-nutrition. But so far no attempt has been made to estimate the extent of this under-nutrition. Probably the most satisfactory method is to determine the energy value of the diets of various classes and to correlate this with the rate of growth of children. The present paper is an attempt to do this as regards the working classes.

It has been found, by definite measurements, that every individual expends daily a certain amount of energy in carrying on the vital processes essential to the continuance of life. In the case of a man at rest in bed, this is equivalent to about 1700 calories per day. This is his basal metabolism. Benedict has shown that in conditions of under-nutrition it may be decreased some 30 per cent., and it may, therefore, be possible for life to be maintained by a resting man on some 1200 calories per day. The performance of any muscular work, even that of sitting in a chair for, say, 16 hours, increases the expenditure of energy roughly to 2200 calories, while for 8 hours in bed, 14 hours in a chair, and 2 hours of moderate exercise an expenditure of 2500 calories is required—about 800 above the basal metabolism. In the child energy is also required for growth. The requirements for basal metabolism and for growth are fairly constant for any particular age, but those for muscular work vary enormously, depending upon the activity of the individual and upon the work done.

In the child more energy is required per unit of weight than in the adult, but the smaller size of body demands less total expenditure; and it is possible to express the energy expenditure of children of different ages in fractions of those of a man of normal size. The requirements of a family or community may thus be stated as those of so many men. The energy required

is supplied in the food, and its energy value may be determined by the calorimeter. The gross energy of the food is not all available, some 10 per cent. being lost in the process of digestion; so that the supply in the food eaten should exceed the net requirements by this amount. It is generally accepted that the energy allowance of family diets should be equivalent to 3000 calories per man per day, and among the labouring classes in this country such a supply is generally obtained.

*Method of Investigation.*

To undertake the present investigation one of us (M. G.) was seconded from her work in Glasgow under the Medical Research Council, and, through the kindness of the Friends' Relief Mission, was enabled to make a detailed study of the diets of 49 families of the poorer classes in Vienna. These included 253 individuals —49 men, 65 women, and 139 children under 14 years. These studies were carried out by the methods devised by Atwater, used extensively in America, and employed in this country for the study of the dietaries of the labouring classes in Edinburgh and Glasgow. A description of the method will be found in Professor Noel Paton's Introduction to Miss Lindsay's Report on the Food of the Glasgow Labouring Classes in 1911. One of us (M. F.) is responsible for working up the results so obtained; the other (M. G.), in making the investigations, also weighed and measured the children in nearly every family, and usually ascertained the heights of the parents.

Owing to the prevalence of rickets in Vienna, the opportunity presented itself for making comparative studies of the diets of families containing children suffering from this disease, and of those with children free from the condition.

The points dealt with are: (1) the energy intake of the diet; (2) the height and weight of the children; (3) the income and expenditure upon food; (4) the composition of the diets—i.e., the actual foodstuffs used; (5) the nature and extent of the Mission help; and (6) rickets—a comparison of the two sets of dietaries.

1. *Energy Intake of the Diet.*

In determining the energy value of the food eaten Atwater's analyses were generally used. For meat the analyses of lean or "very lean" meats were selected. The results in all probability are too high, since the cattle are very emaciated, and the flour, milled to a high grade, is of bad quality. Lusk's coefficients were used in calculating the "man value" of the families as follows:—

| | | | |
|---|---|---|---|
| Man | 1·0 | Child, 10–13 | 0·83 |
| Woman | 0·83 | Child, 6–10 | 0·6 |
| Boys, 13–20 | 1·0 | Child under 6 | 0·5 |
| Girls, 13–20 | 0·83 | | |

Using these coefficients the average dietary yield expressed as per man per day of all the families was:—

| | | |
|---|---|---|
| Energy | | 2064 calories. |
| Protein— | (*a*) total | 64·0 g. |
| " | (*b*) from animal sources | 5·3 g. |
| Fat | | 40·2 g. |

Since margarine was the chief source of fat it is impossible to give the amounts of fat from animal and vegetable sources. The above dietary yield is equivalent to a supply of *available* energy of about 1860 calories, an amount insufficient to meet the energy requirements of a man doing practically no muscular work, even upon the reduced basal metabolism of undernutrition.

The variations are naturally very great alike in energy value, in proteins, and in fat. The energy value varies from 1269 to 3746 calories, or, leaving out two diets which are more than 600 calories greater than the others, from 1269 to 2944 calories; the protein intake from 38·7 to 114·7 g., and the fat intake from 12·4 to 79·6 g. per man per day. The most generous diet is that procured by a German family. It is more varied than any of the others, including fresh milk, pork, and sugar, in addition to the usual bread, vegetables, cocoa, and margarine. The other dietary over 3000 calories is made up of few foodstuffs, but these in generous amounts. Of the family having the lowest diet little information is available, but both parents are described as careless, lazy, and very undernourished. The only child (2½ years) is very deformed by rickets and not yet walking. As most of the fat consumed comes from relief agencies the extremes of fat intake show that unusually large or unusually small amounts of margarine had been received from them. The family having only 12·4 g. of fat per man per day had received only one Mission ration, among a family of five, while the family having 79·6 g. per man per day had three rations for two persons, and the amount is quite exceptionally high.

The detailed information regarding energy intake, &c., is contained in Table I.:—

TABLE I.—*Investigation of Working-class Families in Vienna.*
Calculated as per man per day.

A.—WITH RICKETS.

| No. | Persons in family. Adult. M. | Adult. F. | Under 14. | Father's occupation. | Income in kronen per week. | % of income spent on food. | Particulars of diet. Calories per man per day. | Protein in grms. Total. | Protein in grms. Animal. | Fat in grms. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 1 | Dustman. | 400 | — | 1259 | 43·0 | 1·6 | 26·3 |
| 2 | 1 | 1 | 6 | Cabinet maker. | 650 | — | 1585 | 63·2 | 0·7 | 42·9 |
| 3 | 1 | 1 | 3 | Pottery painter. | 500 | — | 1506 | 46·8 | 0·6 | 38·2 |
| 4 | — | 1 | 2 | Army. | 250 | — | 1813 | 55·0 | 1·8 | 65·4 |
| 5 | 1 | 1 | 4 | No work. | 300 | — | 1801 | 60·0 | 1·2 | 46·0 |
| 6 | 1 | 1 | 2 | — | 300 | — | 1846 | 54·6 | 1·2 | 42·4 |
| 7 | — | 1 | 3 | No work. | 350 | — | 1665 | 54·6 | — | 47·7 |
| 8 | 1 | 1 | 2 | Carpenter. | 500 | — | 1986 | 64·0 | 2·4 | 53·0 |
| 9 | 1 | 2 | 4 | Out of work. | 550 | — | 1344 | 44·0 | 1·4 | 25·7 |
| 10 | 1 | 1 | 1 | Lamplighter. | 560 | — | 2158 | 68·4 | 2·3 | 43·5 |
| 11 | 1 | 1 | 1 | No work. | 200 | — | 1542 | 50·3 | — | 23·0 |
| 12 | — | 2 | 1 | Deceased. | 350 | — | 1432 | 47·9 | 1·3 | 32·6 |
| 13 | 1 | 1 | 2 | Out of work. | None | — | 1554 | 53·8 | — | 26·8 |
| 18 | 2 | 2 | 2 | Hawker. | 600 | 63 | 1810 | 60·0 | 2·2 | 27·5 |
| 20 | 1 | 1 | 1 | Carpenter. | 600 | — | 2166 | 76·3 | 5·6 | 25·1 |
| 21 | 2 | 3 | 5 | Mason. | 1400 | 47 | 2338 | 55·8 | — | 55·8 |
| 24 | 1 | 1 | 3 | Street cleaner. | 700 | — | 2596 | 79·4 | 9·6 | 52·4 |
| 26 | 1 | 1 | 2 | Paper factory. | 275 | 100 | 1515 | 43·3 | 12·2 | 54·3 |
| 27 | 1 | 1 | 5 | Shoemaker. | 750 | 80 | 1990 | 54·3 | 13·7 | 47·8 |
| 28 | 1 | 1 | 2 | Coachman. | 500 | 62 | 2151 | 56·4 | 15·1 | 59·0 |
| 29 | — | 2 | 2 | Deceased. | 195 | 78 | 2235 | 63·0 | 6·7 | 47·4 |
| 48 | 1 | 2 | 4 | Carpenter. | 300 | 89 | 1603 | 55·2 | 2·2 | 39·0 |
| 36 | 1 | 1 | 3 | Leather worker. | 450 | 64 | 1456 | 43·4 | 3·3 | 12·4 |
| 38 | 2 | 2 | 4 | Builder. | 750 | 76 | 2432 | 78·5 | 4·7 | 34·7 |
| 37 | 1 | 1 | 2 | Paper factory. | 400 | 84 | 1918 | 57·5 | 10·4 | 36·0 |
| 45 | — | 1 | 1 | Electrician. | 160 | 107 | 2143 | 49·8 | 7·0 | 79·6 |
| 40 | 1 | 1 | 3 | Waiter. | 350 | 68 | 2178 | 69·0 | 0·1 | 23·4 |
| 32 | — | 1 | 2 | — | 200 | 77 | 1782 | 64·8 | — | 55·2 |
| 34 | 2 | 2 | 1 | Tram conductor. | 550 | 72 | 2841 | 82·0 | 7·5 | 43·1 |
| | | | | Average | 451 | 76 | 1885 | 58·4 | 4·0 | 41·5 |

B.—WITHOUT RICKETS.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 14 | 1 | 1 | 4 | Clerk. | 600 | — | 1712 | 49·6 | 11·2 | 40·7 |
| 15 | 1 | 1 | 1 | Tram conductor. | 350 | — | 1754 | 64·4 | 0·5 | 25·1 |
| 16 | 1 | 1 | 2 | Carpenter. | 250 | — | 1690 | 57·0 | 0·9 | 23·1 |
| 17 | 1 | 1 | 1 | Musician. | 650 | 63 | 2922 | 113·7 | — | 39·5 |
| 46 | 1 | 1 | 6 | Taxi-driver. | 500 | 87 | 2600 | 81·3 | 6·0 | 45·8 |
| 41 | 1 | 1 | 4 | Cobbler. | 500 | 77 | 2389 | 63·8 | 2·7 | 48·4 |
| 44 | 1 | 1 | 2 | Ivory carver. | 550 | 60 | 2071 | 68·3 | 20·6 | 40·7 |
| 47 | — | 3 | 1 | Deceased. | 600 | 69 | 2136 | 60·7 | 4·7 | 18·7 |
| 49 | 2 | 2 | 2 | Gardener. | 800 | 59 | 2512 | 64·3 | 1·4 | 31·9 |
| 35 | 1 | 1 | 2 | Paper factory. | 400 | 60 | 1837 | 38·7 | 3·8 | 18·4 |
| 43 | 1 | 1 | 1 | Leather worker. | 400 | 80 | 2664 | 87·8 | 10·4 | 31·6 |
| 39 | 2 | 3 | 2 | Post office. | 600 | 59 | 2000 | 54·7 | 9·4 | 26·3 |
| 19 | 1 | 2 | 1 | Out of work. | 350 | 27 | 1883 | 62·8 | 1·1 | 36·5 |
| 22 | 1 | 1 | 1 | Painter. | 550 | 62 | 3572 | 95·6 | 4·8 | 51·1 |
| 23 | 1 | 1 | 2 | Out of work. | 200 | 100 | 2394 | 74·6 | 8·3 | 52·6 |
| 25 | 1 | 2 | 1 | Army. | 314 | 64 | 3746 | 107·0 | 20·6 | 64·2 |
| 30 | 1 | 1 | 5 | Carter. | 780 | 73 | 2944 | 114·2 | 11·8 | 52·2 |
| 31 | 2 | 1 | 2 | Out of work. | 700 | 64 | 1551 | 45·6 | 11·1 | 53·2 |
| 33 | 1 | 1 | 2 | Clerk. | 500 | 72 | 2177 | 70·6 | 16·8 | 45·6 |
| 42 | 1 | 1 | 3 | Clerk. | 175 | 66 | 1842 | 56·9 | 0·5 | 30·8 |
| | | | | Average | 488 | 67 | 2325 | 71·6 | 7·3 | 38·3 |
| | | | | Average of 49 families | 466 | 71 | 2065 | 64·0 | 5·3 | 40·2 |

2. *Height and Weight.*

The Viennese, being chiefly of Teutonic origin, belong to one of the taller of the European races. In the families investigated the father's height, ascertained in 27 cases, averaged 2·4 per cent., and the mother's height, from 41 cases, averaged 3 per cent. above the standard of the Anthropometric Committee of the British Association. Since the height of the parents approximated so closely to the British standard, it has been used to measure the growth and state of nutrition of the children. The results have been embodied in Table II.

TABLE II.—*Average Height and Weight of Viennese Children at Different Ages, compared with the British Anthropometric Standard Average (Sexes Combined).*

| Age in years. | No. of children. | Weight. | | Height. | |
|---|---|---|---|---|---|
| | | Pounds. | Percentage under anthropo. average. | Inches. | Percentage under anthropo. average. |
| 1– 2 | 7 | 19·6 | 14·8 | 28·5 | 6·6 |
| 2– 3 | 12 | 20·9 | 23·7 | 28·5 | 13·6 |
| 3– 4 | 11 | 21·9 | 29·6 | 30·68 | 15·8 |
| 4– 5 | 13 | 29·4 | 16·0 | 34·0 | 11·2 |
| 5– 6 | 14 | 33·7 | 12·8 | 36·21 | 11·5 |
| 6– 7 | 11 | 37·5 | 10·7 | 38·82 | 11·2 |
| 7– 8 | 10 | 39·7 | 14·6 | 43·4 | 4·0 |
| 8– 9 | 6 | 42·5 | 15·8 | 47·2 | +0·9 |
| 9–10 | 8 | 49·8 | 9·3 | 48·69 | 1·0 |
| 10–11 | 7 | 50·8 | 17·4 | 50·79 | 1·7 |
| 11–12 | — | — | — | — | — |
| 12–13 | 9 | 62·2 | 14·8 | 53·89 | 2·6 |
| 13–14 | 5 | 69·6 | 14·1 | 56·1 | 2·0 |

In spite of the small numbers under each year the average percentage deficiency shows less variation than might have been expected. Taking the figures in longer periods, they give the following results :—

| | Average percentage deficiency in weight. |
|---|---|
| Under 2 years (17) | 15·6* |
| 2 to 3 years (23) | 26·5 |
| 4 to 9 years (62) | 13·2 |
| 10 to 13 years (21) | 15·5 |

* Including infants under 1 year not included in last table.

Comparing those between 5 and 11 with the children from one-roomed homes in Glasgow, they are at least 3½ lb. lighter.

The insufficient diet is thus associated with marked decrease in growth, the deficiency of weight, as usual, being more marked than that of height. Both height and weight are most markedly below the normal up to the age of 4 years. This is to be expected, since the normal increment during these years is greater than it is at any age up to 11 or 12 years, and the percentage increase is greater than at any subsequent period. The children of 2 and 3 years have suffered more than the infants. This is probably due to the latter having been generally breast-fed, while during succeeding years the lack of cow's milk has been most acutely felt.

The problem is—How do these children manage to grow? The diet generally allowed to children yields ample energy, not merely for basal metabolism and growth, but also for muscular exercise, which in the case of an active child may more than double the basal metabolism. Under-nutrition may not only lower the basal metabolism, but may be accompanied by decreased activity, so that the energy required for growth may still be obtained from an inadequate diet.

### 3. *Income and Expenditure.*

The average income of the 49 families was 466 kronen per week. Comparing the relative cost of living in Vienna and in Britain, this is equivalent to only about 12 or 13 shillings. The greater part of the income was, of course, spent on food. In 31 families, in which a detailed study was made of the expenditure, 71·2 per cent. went on food. Rents are very low, only amounting to 3·9 per cent. of the income. On the other hand, coal, wood, and petroleum are almost prohibitive in price, coal costing anything up to 6 kronen per kilo, and matches costing most families more than rent. Heating and lighting accounted for 19·7 per cent. of income. These four items of expenditure—food, rent, light, and heat—thus averaged 94·8 per cent. of income. The remainder is totally inadequate to provide for other necessities. Cloth, whether for wearing apparel or hospital bandages, is exceedingly scarce and consequently very expensive. Most of the children in the families visited were poorly and insufficiently clad.

### 4. *Nature of the Food Material Consumed.*

While there is an all-round shortage of food materials, meat, fats, sugar, and milk are almost unobtainable. Most of the budgets included a small amount, about 125 g. of pork, horsemeat, or sausage during the week of study, and only ten had fresh milk, though most procured condensed milk from the Friends' Relief Mission. The following is a typical diet for one week:—

*Family E.—Father, Mother, Girl (4 Years), Boy (3 Years).*
Income 200 kronen, plus 100 kronen from sale of a table = 300 kronen.

| | Food. | Weight in grms. | Calories. | Cost in kronen. |
|---|---|---|---|---|
| A | Potatoes | 7000 | 29280 | 100 |
| | Flour | 2000 | | 25 |
| | Margarine | 100 | | 10 |
| | Marrow | 1000 | | 8 |
| | Cabbage | 500 | | 2 |
| | Lettuce | 1000 | | 4 |
| | Bread | 6000 | | 36 |
| B | Rice | 500 | 9400 | 128 |
| | Condensed milk (unsweetened) | 1642 | | |
| | Margarine | 250 | | |
| | Cocoa | 200 | | |
| | Flour | 500 | | |
| | Total | | | 313 |

A = Purchased in the market.
B = Supplied by the Friends' Relief Mission.

In addition to this two of the family had a free meal each day from the Dutch Mission. This was approximately equal to an additional 8000 calories—in all, 46,680.

### 5. *Nature and Extent of Help Given by Relief Agencies.*

In the budget just quoted rice, condensed milk, margarine, cocoa, and flour constitute two rations from the Friends' Relief Mission. The food composing this ration varies a little from week to week, but is practically constant in energy value—about 4700 calories. The price charged for each ration was 68 kronen, but in exceptional cases it is either given gratis or at a reduced cost. This ration may be purchased for each child in a family, but more than two rations for three children were rarely purchased.

A number of the families had food from the American or Dutch Missions instead of, or in addition to, the Friends' ration: this takes the form of a daily meal, of energy value approximately 670 calories, which was included in calculating the energy value of the diets.

Without the help of the relief agencies the diet of most of the families would have been poorer by 500 or 600 calories per man per day, averaging only about 1574 calories, and would have lacked almost entirely milk, sugar, and fats.

### 6. *Rickets.*

In 29 of the 49 families some at least of the children had rickets. The older children in some cases must have suffered from it before the war, as they show the characteristic deformities and were late in learning to walk. In most of the families, however, it is said to have developed within the last year or two. In every family with rickets the younger members had the disease at the active stage. Many of them presented marked deformity.

In Table I. the results of the investigation have been averaged in two groups, according to the presence or absence of rickets. The energy value of the diet of the families with rickets is 440 calories per man per day below that of those without it. The protein intake is 13·2 g. less. The families without rickets had, on the average, 3·3 g. per man per day more of protein from animal sources than the others. The difference between the two sets is mainly due to a greater shortage of flour, bread, and vegetables in the diets of the families with rickets. There was little difference in the average amount of fat consumed. A few of the children with rickets were having cod-liver oil from the Friends' Mission, but not in sufficient amount to make any appreciable difference upon the average.

### *Conclusion.*

These studies show how very inadequate is the diet of the working classes in Vienna at the present time. Were it not for the generosity and devotion of the Society of Friends and the American and Dutch Missions, their condition would be one of actual starvation. It is hopeless to expect from a population on such diets the initiative and vigour by which alone the country can be saved from ruin.

We desire to express our sincere thanks to the Society of Friends' Relief Mission who have made this investigation possible and have helped in every way. We would also thank Professor Noël Paton for assistance in the preparation of the paper, and Miss Tully, who has aided us in drawing up tables and in working out results. We have further to acknowledge our indebtedness to the Medical Research Council for enabling one of us (M. G.) to carry on these investigations.

We hope to deal in a future paper with the dietary conditions of middle-class families in Vienna and with those of the rural population in the neighbourhood of the city.

## THE BACTERIOLOGICAL INVESTIGATION OF A CASE OF PLAGUE.

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AND
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THE occurrence of plague in a patient who resided within about a quarter of a mile of the docks, but had no connexion with shipping or sailors, is unusual. The locality in which she resided has been free from plague both before and after her infection. On account of the rarity of this disease in such a subject, it has been thought advisable to record not only the clinical findings but also the bacteriological investigations which definitely proved the disease to be bubonic plague.

A female, aged 25, was admitted to Sir Patrick Dun's Hospital, Dublin, on Oct. 12th, 1920, with a swelling in the groin, about the size of a walnut, and a history of intense pain in that region for three days. Her temperature on admission was 104° F. and she appeared to be very seriously ill. Sir Arthur Ball removed the gland which was the cause of the swelling, and sent it for bacteriological examination to one of us (V. M. S.), by whom a tentative diagnosis of plague was made. The diagnosis was definitely confirmed a week later.

The patient then came under the care of Dr. H. Drury. Her temperature remained elevated (103° to 104·4° F.) until the sixth day of the disease, when it commenced to fall steadily, but subsequently rose again on the eleventh day. Two days later it became normal. The patient made a good recovery and was discharged from hospital on the fortieth day from the beginning of her illness.

*Appearance of the patient's gland.*—The gland, which measured 1½ by 1 in., was very hæmorrhagic. Films made from scrapings taken from it revealed enormous numbers of bacilli, the characteristics of which will be described later. Sections of the gland showed congestion and hæmorrhages, with some necrosis. In every part the same bacilli were present in large numbers.

*Cultural characteristics of the organism isolated from the gland.*—The original cultures from the gland were made on blood-agar plates. At the end of 24 hours very minute colonies, scarcely visible to the naked eye, had appeared. After 48 hours' growth the colonies measured about 0·5 mm. in diameter. The colonies were circular and raised; their surface was smooth and shining; they were of a greyish-white colour when seen by reflected light; by transmitted light they appeared slightly granular and opaque in the centre; their margins, seen with a lens, were almost transparent and had a wavy edge. Subcultures attempted from the original plates on trypagar without the addition of blood were, with one exception, unsuccessful, but a good growth was obtained on blood agar. Subsequent subcultures were uniformly successful on trypagar without blood. On agar slopes the organism gave a thick, opaque, smooth, and moist growth of a greyish-white colour. The culture was sticky and tenacious when touched with a platinum loop. On broth the organism grew slowly and formed a granular deposit at the bottom of the tube, leaving the upper part clear. On litmus milk after four days a slight acidity was produced. Gelatin was not liquefied.

*Microscopic Appearance of the Organism.*

Films made from scrapings of the patient's gland showed very large numbers of short, plump, Gram-negative bacilli with rounded ends (Fig. 1). Their average size was 2·5 by 1·7 $\mu$, and they therefore appeared almost like oval cocci. A few longer forms were also present. The most striking feature about the bacilli was that their bodies were lightly stained, with dark staining dots at either end. The bacilli in young culture (24 hours old) resembled those present in the gland fairly closely, but for the most part they were slightly longer and less plump (Fig. 3). After 48 hours' growth the bacilli appeared definitely longer and thinner, and a few quite long forms, 10 to 12 $\mu$, were present. Polar staining was never so well marked in the bacilli from cultures as in those from the gland, but it could almost always be demonstrated. In broth culture the bacilli were only slightly longer than those from the gland. They occurred in chains of four or five members, but a few longer chains of about ten bacilli were seen. On salt agar (3 per cent. of salt) in 24 hours the bacilli were considerably larger than on plain agar. After three days' growth involution forms, oval, globular, and pyriform bodies, which took stain badly, were seen (Fig. 4). These were very much larger than the bacilli grown on other media. The organism was non-motile and spores were not present.

*Experiments on Animals.*

A guinea-pig was inoculated, intraperitoneally, with a culture of the bacillus. As the animal appeared to be very sick it was killed at the end of 48 hours. There was a general subcutaneous œdema of a gelatinous appearance. General peritonitis was present, and the pus from the peritoneal cavity was sticky and could be pulled out in long threads. Microscopically this pus was found to contain large numbers of bacilli resembling those found in the patient's gland but slightly longer (Fig. 2). Cultures made from the peritoneal pus and from the spleen gave an organism identical with that already described.

A second guinea-pig, inoculated subcutaneously near the knee with an emulsion of the patient's gland, died on the seventh day. A general œdema with areas of congestion was present. There was, in the inguinal region on the inoculated side, an enormous mass of enlarged glands surrounded by an area of congestion with hæmorrhages. The other glands of the body were enlarged, but not so markedly. The spleen was about four times the normal size and was studded with small white nodules about 0·5 mm. in diameter. The lungs were congested. Films made from the enlarged glands and from the spleen showed bacilli resembling very closely those present in the gland removed from the patient. The same bacillus was found in cultures made from the affected glands, the spleen, and the heart blood.

The hair on the abdomen of a third guinea-pig was shaved, and a small amount of the culture of the bacillus was rubbed on the shaved area. This animal died on the fifth day. The skin where the culture had been rubbed was red and

*Plague Bacillus in its Various Forms, as seen in Direct Films and after Culture.*

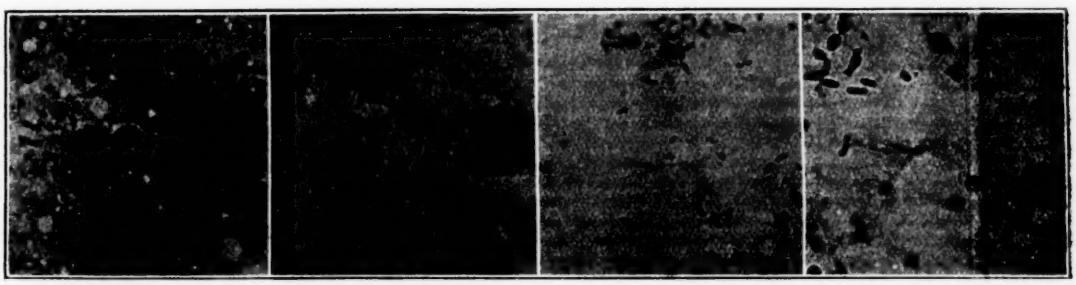

FIG. 1.—Smear from patient's gland.

FIG. 2.—Smear from guinea-pig's gland.

FIG. 3.—24-hour agar culture.

FIG. 4.—Involution forms, 72-hour culture on salt agar.

rough, and there was an area of congestion with some hæmorrhages underlying it. There was a general, subcutaneous, hæmorrhagic, and gelatinous œdema. The hæmorrhages were most common in the region of the inguinal glands, which were enlarged and congested. Films made from these glands showed that they were packed with bacilli, identical in microscopic characteristics with those already described. Cultures made from the glands, the spleen, and the blood all gave growth of the same organism.

*Blood Culture.*

A culture of the patient's blood was made on the seventh day of the disease and a growth of the organism described above was obtained. Films made at the same time were examined, but no bacilli were found in them. Positive blood cultures are rare in plague, except in those cases which are very severe and which usually have a fatal termination.

*Agglutination.*

The patient's serum was tested on the seventh day of her illness to ascertain if agglutinin for *B. pestis* was present. The organism used was one obtained from the National Collection of Type Cultures, and was marked "Strain—Parel." No agglutination occurred in a dilution of 1/10. On the fortieth day a further test was made. It was then found that the patient's serum agglutinated both the type strain of *B. pestis* and the homologous organism to the same degree. With both complete agglutination was present in a dilution of 1/20, but was absent in a dilution of 1/40. The macroscopic method was used, and the tubes were incubated in a water-bath at 55° C. for four hours.

*Remarks.*

There can be no doubt that the organism was a true *B. pestis* and that the patient was suffering from bubonic plague. The method of infection is unknown. Both the municipal and port sanitary authorities failed to find any unusual mortality among rats. A number of rats were killed and sent to us for examination, but all were healthy. The fact that the patient owned a cat which alternately went on hunting expeditions and slept on her bed, may possibly be a link in the chain of infection. Nearly five months have now elapsed since the occurrence of this case, and no further cases have been recorded.

We have to thank Professor Adrian Stokes for the micro-photographs which accompany this paper.

## THE INFLUENCE OF AERATION ON THE STABILITY OF THE ANTISCORBUTIC FACTOR.

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THIS preliminary note describes the results obtained from some experiments instituted with the object of studying the influence of air on the antiscorbutic factor at ordinary temperature as well as at 100°C. The inquiry was pursued as an outcome from observations made that ozone inactivated this and the fat-soluble factors at ordinary temperature. The experiments revealed that bubbling air at ordinary temperature through an antiscorbutic solution inactivated it. It was found, on the other hand, that on boiling an active solution for two hours in an atmosphere of $CO_2$ no marked diminution in the activity could be recorded, whilst on boiling a similar solution for one hour during which time air was bubbled through almost the entire activity was lost.

These results are in conformity with the observations made by Delf (1920).[1] Miss Delf found that quite marked antiscorbutic potency was retained by orange-juice and swede-juice heated for some time at temperatures above 100° C., and she suggested that the destruction may have been affected directly either by retarded oxidation (the juice having been heated in an autoclave) or indirectly by the production of stabilising bodies. My experiments seem to point to the fact that the former is the more likely explanation for this somewhat unexpected stability observed by her in the case of the juices.

[1] Delf (1920), Biochem. Journ., xiv., 211.

As a source for the antiscorbutic factor lemon-juice from which the organic acids were removed by precipitation with calcium carbonate was employed. The minimum dose of this solution for the guinea-pig is about 1½–2 c.cm. When air was aspirated through such a solution for 12 hours at laboratory temperature daily doses of 3 c.cm. and 5 c.cm. were insufficient to prevent, but delayed very slightly, scurvy in guinea-pigs, whilst 7 c.cm. was found to be inadequate to promote normal growth. Daily doses of 1½ c.cm., 3 c.cm., and 6 c.cm. of the decitrated juice which was boiled for one hour and through which air was bubbled during the boiling were insufficient to prevent or to delay to any very marked degree the onset of scurvy in the animals. From the administration of daily doses of 1·5 c.cm., 4 c.cm., and 6 c.cm. of the juice boiled in an atmosphere of $CO_2$ for two hours no inactivation which would become manifest by our present technique could be established.

It is of interest to note that the behaviour of the antiscorbutic factor towards heat and aeration is very similar to that of the fat-soluble factor. The anti-neuritic factor, however, seems to be more stable towards oxidation. Results obtained by exposing the antineuritic factor to ozone show that it is only affected, if at all, to an extremely small extent by that treatment.

All the data available in connexion with the behaviour of the antiscorbutic and the fat-soluble factors at high temperatures will have to be reconsidered in view of the latest results obtained as regards their great tendency to be inactivated on aeration, especially when heated.

I am indebted to Professor Sensho Hata for help in some of the experiments of this inquiry.

The expenses of this research were defrayed from a grant made by the Medical Research Council, to whom my thanks are due.

## MENTAL TESTS.[1]

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THE passing of the Mental Deficiency Act in 1913 put us ahead of every other country in practical arrangements for dealing with mental defect. The application of that Act, however, leaves much to be desired, while we are a little backward in some of the scientific work connected with it. For instance, the subject of mental tests has received but scant notice in most of our recent books, while for our test material we still have to send to Chicago. It is true that important investigations with tests have been carried out by Dr. A. R. Abelson and Mr. Cyril Burt, and recently Dr. W. B. Drummond, Mr. Ballard, and others, but as a rule the subject has been shelved. Possibly some of the tests I shall mention are crude and imperfect, but when modified they will be very valuable. In diagnosing mental capacity mental tests should be to the psychologist what the stethoscope, hæmocytometer, sphygmomanometer, and other instruments of precision are to the clinical physician: the man of experience with keen intuition can sometimes dispense with them, but even he will often find they shorten his labour, give him more definite information, and sometimes further insight. Just as the ordinary clinical instruments may fail when we need their help most, so mental tests may disappoint us in our most difficult case; but in the other 99 per cent. they are a real help. The subject opens up a vast vista of possibilities; already there are tests for vocations and particular kinds of work, and even for morals. As a matter of fact I have found moral tests distinctly useful in dealing with abnormal conduct. The psychologist, the criminologist, the educationist and all those who organise or profit by the labour of others can scarcely afford to dispense

[1] Paper read at the Section of Psychiatry of the Royal Society of Medicine on Feb. 8th, 1921.

with tests. Experiments by large firms in America have shown the importance of properly arranged tests not only in selecting employees, but also in placing them straight away in those departments where they can be most useful.

Mental tests are particularly useful in criminal work. It is true that there is no perfect set of tests for mental deficiency available; the final decision must be the judgment of the expert examiner; this is based largely in the extreme case on the conduct and mode of life of the prisoner, which must not only be abnormal, but abnormal in a manner characteristic of mental defect. Yet the legal mind finds it difficult to realise that the mental defective, particularly the high-grade one, may have nothing abnormal in his appearance, or even in his manner and conversation at an ordinary interview. It is therefore an advantage for the medical psychologist to be able to say that in addition to his opinion based on an observation of the accused and a study of his records, he can state that the prisoner, when submitted to one series after another of mental tests which can be accomplished by ordinary people, failed, and revealed that he had a degree of intelligence only equal to that of an average child of say 8 years and 3 months. In some cases it is not failure or success in a particular test which impresses us so much as the method of approaching and carrying it out, or the degree of satisfaction with the result. The intelligent man who fails in a simple test may say at once, "What a fool I am," but the defective will often start arguing that he is right, or else smile the beautiful bland smile of absolute ignorance.

*Mental Tests in the American Army.*

One of the strongest arguments for tests comes from the American Army. Dr. V. V. Anderson, of the Municipal Court at Boston, U.S.A., first states that 10 per cent. of all civilian prisoners are mentally defective, and that those 10 per cent. are responsible for 50 per cent. of all crime. When the Americans came into the war they decided to raise an army of 3,000,000 men. On inquiry into the arrangements necessary for an army of that size, they were informed that experience in previous wars showed that provision must be made in military prisons for 50,000 cases. It occurred, however, to their psychologists that this number might be reduced if all recruits were given a special examination with the object of excluding mental defectives. This was done, with the result that there never were as many as 5000 cases in the American military prisons, or less than one-tenth of the number they expected to have. The American psychologists, however, did more than that. They extended their examination so that they analysed the intellectual capacity of the men, and so could estimate what work they were fit for in the army. Having previously found out what amount of intelligence was necessary for any particular line, they were able to point out the man best suited for promotion to commissioned work, or for undertaking work requiring special skill. They also saw that each unit had an adequate number of men with more than average intelligence, instead of allowing an accumulation of such men in one place, with a corresponding lack of capable men elsewhere. Not only did they make the best use of their good material and prevent the bad from being a handicap, but they actually made use of many of their defectives by enrolling them in labour battalions and putting them to simple tasks which they could do as well as any one else. The story recorded in "Mental Tests in the American Army, by Yoakum and Yerkes" is a marked contrast to the haphazard method adopted by our War Office, who at the beginning of the war had in the trenches highly trained mechanics, urgently required for skilled work at home, whose loss never could have been made good had there not been a reserve in America, and had not the United States recognised that they must not risk their technical experts. Of course, the methods of examination for our army were much more satisfactory towards the end of the war. In the case of the Flying Corps, at all events, the examination for admission was thorough and satisfactory. The Americans claim that the example of their army in the war must not be forgotten, because not only will the country which studies what particular qualities are required for each bit of army work, and then devises tests by which those qualities may be recognised, have an army far superior to any other in the next war, but in the industrial war of the near future that nation will have a corresponding advantage which first estimates the capacities required in any particular place, and then puts there only those who have those capacities, and does not call on the less intelligent to do work they never can accomplish. Many of the American army tests are open to criticism, so it is important to remember that the mental age was first estimated by the Terman Revision or Point-Yerkes scale, and that the other tests were often only used to elicit capacity for special kinds of work. One obvious criticism is that other factors, such as temperament and health, must also be taken into account. There are no tests for temperament yet, but that is no reason why they should not be discovered. We have made a start with morals, and even now health and other important factors besides intellect can be graded more or less satisfactorily. No system will ever meet every case, but in the mass the possibility of error is small. An important matter is to make sure the person examined does his best. As regards the actual tests, I shall only explain and demonstrate a few with the object of showing some of the different lines available for investigation.

*The Graded Tests of Binet and Simon.*

The first really useful set of tests we owe to Binet and Simon, who produced their original series of graded tests in 1908, and revised them in 1911. These tests enable a rapid psychological analysis to be made of certain capacities, so that the degree of intelligence may be estimated. Their great value depends upon the fact that they are arranged in a series according to age, and also that each response is either a pass or a failure. For each year of life from 3 to 10, and again, for 12, 14, and 16, there are four or five questions or tasks. These are so arranged that an average child can just pass those for his own age, but not those for later years. In actual practice it may be found that a child can accomplish some of the tests for years above that in which he has passed all. In this case his mental age is recorded as that for which he passes all the tests, with the addition of so many months, according to the number of tests for the particular year, for each one he can pass in those for higher years. These additions as a rule do not amount to much; the greatest irregularity occurs in the case of epileptics and moral imbeciles, and is, to some extent, pathognomonic of those conditions. For instance, a mentally defective epileptic youth of 18, who could not read, passed all the tests (Terman Revision) for year 6, four for year 7, five for year 8, three for year 9, three for year 10, and almost succeeded in one for year 12. His mental age was, therefore, 8¼ years. Mental defect is considered to be backwardness to the extent of two years or more in a child under 9 years of age, and three years or more if over 9. It is generally agreed that a mental age of 7 years or less constitutes an imbecile.

*Revisions and Modifications.*

An enormous amount of work has been done on these lines, particularly in America. It was soon found that the tests were not perfect, and required modifications, especially for English children. The first revision—one that has been and is still extensively used—was put forward by Dr. H. H. Goddard, who restandardised the tests. The Yerkes-Bridges "Point Scale" altered the scoring and added new questions. Then came Professor Terman's Stanford Revision, which, in my opinion, is the best now available. In order to use these tests properly it is necessary to get Professor Stanford's book and carefully study the directions given in connexion with individual tests. If this is done, anyone who can get on with children and is able to put them at their ease can, with care and practice, learn how to conduct the examination satisfactorily. As a rule children must be encouraged in every possible way during the examination and told they are doing well;

but sometimes, as in the test with the pictures, this must not be done, because it would have the effect of making the child think his reply in regard to the first picture was quite satisfactory, when really it was not. He might, therefore, not give a better reply in the case of the two other pictures, although well able to do so.

The most recent criticism was made in the *Training School Bulletin* for March and April, 1920, by S. D. Porteous, who deals with the Terman Revision, and incidentally gives a list of the eight tests in which defectives most frequently fail. He, however, uses these eight tests as a means of confirmatory diagnosis in doubtful cases, on the grounds that if the subject shows the characteristic failures of defectives the presumption of feeble-mindedness is thereby increased. At the same time he makes this a rough-and-ready test for mental age by allowing one year for each success, beginning to count from six. Thus one success makes it six years, two successes seven years, and so on. The actual tests selected by Dr. Porteous are Test 3 for year five, Test 2 for year seven, Test 1 for year eight, Tests 2 and 4 for year nine, Tests 3 and 6 for year ten, and Test 1 for year 12.

### *The Intelligence Quotient.*

In connexion with the mental age the term "intelligence quotient" (often designated I.Q.) is frequently used; this is the ratio of mental age to chronological age. Thus a child of 10 with a mental age of 10 is normal, and has an intelligence quotient of 1·0; but if his mental age is only 7, his intelligence quotient is 0·7. Intelligence quotients appear to remain fairly constant and therefore give a valuable guide. If a 4 years old child has a mental age of 3 his intelligence quotient is 0·75, and at 16 he will probably have a mental age of 12.

"The age at which intelligence reaches its maximum is the age at which there is no further growth of such abilities as those of memorising, of concentrating attention, learning or reasoning about new topics. It is certain that for the average individual this age is below 20. He may go on acquiring knowledge and wisdom all his life, but he works always with the same mental tools."

There is considerable variation, but probably on the average the maximum intelligence is reached at the age of 16.

A useful test is the Heilbronner test. This consists of a number of little cards in sets of three to seven, usually six. The first of each set shows the basic plan in the construction of some well-known object, such as a bicycle, a telephone, or a windmill; each succeeding card in a series shows a further stage in the setting up of the object, which, of course, it more closely resembles. The series is so arranged that any intelligent person can recognise each object, if not on the first card of the series, at any rate well before the final stage is reached. Cards for this test, like many other tests to be presently described, can be obtained from the C. H. Stoelting Company, 113, North Greenstreet, Chicago, U.S.A.

### *A Few Examples of Tests Devised by Healy.*

Recently the recognition of the importance of individual examination and treatment in criminal work, as well as in educational, has done much to stimulate research. The outstanding investigator in this department is Dr. William Healy, who was formerly medical examiner in the Courts of Chicago, but has recently undertaken similar work in Washington. His book, "The Individual Delinquent," published in 1915 in London by Heinemann, is of outstanding importance. In this book many tests are described, of which the following are specially useful.

*Picture form board.*—This is a picture of a horse and colt in a field with some fowls. Eleven small pieces are cut out and can be removed from the board. "This test is to give interest and to get a first general measure of the individual." "At about 7 years of age any normal child should be able to do it in its entirety." "A young child will accomplish the task in a little over three minutes, while a bright child of 11 can often do it in less than two minutes."

*Construction test "B."*—This is a plain, rectangular piece of wood from which 11 pieces of varying size and shape can be removed. The test is to replace them correctly. Most normal offenders of 12 do this in from one to three minutes; the important point, however, in connexion with this test is the method of accomplishing it. What we want to see is "the attitude of planning as put over against taking the chances on trial and error, and particularly as against the repetition of impossibilities. This—namely, the ability to profit by experience—is registered with certainty in the number of moves made. Errors to the extent of 10 or 15 indicate little, but beyond that there is carelessness or actual inability to think out the situation. There are 11 pieces to put in; thus normally the task should be done in at least 26 moves. Occasionally a slap-dash method done by a bright person involves more moves, but only seldom. It should be remembered that a planful attack may be very slow." I have found this test helpful in forming an estimate of manual capacity. If a defective child does it rapidly and easily I always endeavour, if possible, to keep him outside an institution and let him try ordinary work.

*Puzzle-box.*—This is a square wooden box, the inside of which can be seen through a window in the lid. The lid is secured by a clasp fitting over an eye, through which is passed a staple kept taut by a ring attached to a cord, which passes into the box through a circular opening in the side. Inside the box this cord is kept taut by an arrangement of three other cords and rings passing over fixed metal supports, one cord passing through an opening in the side to be fixed elsewhere. A buttonhook is supplied, and by its use one of the rings can be slipped off its peg, and then by a series of moves the staple is freed and the box can be opened. "It is an example of a concrete problem to be reasoned out from perceived relationships; each step in the solution—namely, opening the box—is plainly visible." "Nearly all of our offenders above 12 who have ordinary ability can open this box well inside of ten minutes." The important point to observe is whether the correct steps are interspersed with errors; this should not be. This test is much more suitable for boys than girls. It is really a test of capacity for planning.

*"Aussage" or testimony test.*—This is a test of the ability to recall a scene that has been presented. The scene depicted is a butcher's shop, in which the butcher, standing with an upraised knife, is just going to cut off some of a string of sausages for a woman customer, who has a little girl and a dog with her. There are several other objects in the picture. "A bright child of 8 can give a good account of this, bringing out most points on cross-questioning, at at rate. A *good* account is 12 or 15 items on free recital, and eight or ten more on inquiry. A *bad* record is more than two or three errors, or acceptance of more than two suggestions."

*Pictorial completion test.*—This is a rectangular wooden board with pictures painted on it of several obvious situations, such as that of a boy who has just broken a window in a hut by throwing stones, while an old man standing by is pointing to the broken glass on the ground. The other incidents depicted include a little girl, whose hat has been blown off by the wind; a cart, the wheel of which has come off; a boy running away from a dog, and two boys playing with a football. Ten small squares, all of the same size, can be removed from the board. A number of alternative squares of the same size, and depicting either blanks or objects which would only appear to a person of low intelligence as suitable for filling in, are provided. The squares are removed from the board and then mixed with the alternative squares; the task is to replace the proper ones. In my experience this pictorial completion test sometimes gives important indications of moral failings and other poor capacities; but some moral imbeciles, especially those of the verbalistic type, come out well in this test, although they may fail badly with an apparently simpler one, such as the construction test "B."

Both the pictorial completion and the testimony test give some idea of the suggestibility of the person who is being examined. A more definite test of suggestibility is the line-copying test.

"The subject is shown, one at a time, a series of lines printed on cards. The first three form a series of regularly increasing lengths; the remainder all have the same length as the third line. The subject is asked merely to reproduce the length of each line by drawing it on paper. The marked and regular increase in length of the first three serves as a suggestion that the increase will continue throughout the series, so that the subject may continue to increase the length of his copies long after the increase in length of the lines presented to him has stopped."

### *Moral Tests.*

For this purpose Dr. Healy has a reaction test; this is in the form of the printed statement of two difficult situations, in each of which the question is what is the right course to take.

Dr. Guy G. Fernald, resident physician at the Massachusetts Reformatory, Concord, has also devised useful differentiating tests for the defective delinquent. He uses a series of 12 tests, which include some of those already described, and a set of ten questions, making up an "ethical perception test." There is also an ethical discrimination test, which consists of a list of ten offences, to be arranged in order of their gravity. The offences are:—

1. To take two or three apples from another man's orchard.
2. To take a cent from a blind man's cup.
3. To break windows for fun.
4. To throw hot water on a cat or in any other way cause it to suffer needlessly.
5. To break into a building to rob it.
6. To take money as "graft" or "rake off" when you are a city or Government official.
7. To try to kill yourself.
8. To get a nice girl into family way and then leave her.
9. To set fire to a house with people in it.
10. To shoot to kill a man who runs away when you try to rob him.

The ergograph affords an important test, not only for delinquents, but also for more ordinary defectives, especially when the question arises of their capacity for work in the ordinary world.

*The Psycho-galvanic Reflex Test.*

Reference may be made to the investigations of Dr. E. Prideaux in the Psychological Laboratory at Cambridge in regard to the psycho-galvanic reflex test. Dr. Prideaux says that:—

"The factors which are responsible for the variation of polarisating resistance in different persons is yet to be determined, but the evidence tends to show that the skin polarisation effects are correlated with the functions of the brain. So far as my experiments go at present, persons of the mentally deficient class tend to give a low psycho-galvanic reflex."

He also states:—

"It is certainly my experience that the reactions in subjects of poor intellect, as evidenced by their low standard at school, are rarely so marked as in my intellectual subjects, and I have attributed this to the fact that the intellectual subject has usually a much greater control over his emotions, and has a wider range in the association of ideas."

*The Need for a Series of Tests.*

It is important to employ some series of tests in all examinations of defectives; in high-grade cases and criminals this is essential. When time is very limited, and a rough-and-ready estimate is all that is expected, I find that fairly definite indications can be obtained from the use of the following three tests: (1) The vocabulary test, as presented in the Terman Revision. This gives a rough indication of the mental age. (2) Healy's form board, which indicates the capacity for mental work. (3) Pictorial completion, which may give a clue to the moral character and type of mental make-up.

The mental examination in the American Army consisted first of the Binet-Simon tests or some modification of them, and, in addition, a large number of other ingenious tests which were divided into two sets according as to whether the recruit under examination was a "literate" or an "illiterate." The "literate" group, of course, were those who could read and understood the English language fairly well.[2]

It is interesting to note that American psychologists applied the army mental tests later to certain other groups. When used in *prisons* it was found that their use would lead to the segregation of the feeble-minded, but did not solve the problem of criminality. When *prostitutes* were examined it was discovered that 53 per cent. had a mental age under 10, and that 10 per cent. should have been in custodial institutions. A large percentage of those with a mental age over 10 had marked mental instability or actual mental disease. Only a small number were mentally normal. *Conscientious objectors* were found to have a mental age above the average. When applied to *industry* the conclusion reached was that the examination was very useful.

[2] Some of the American Army tests were shown, having been copied from "Mental Tests in the American Army," compiled and edited by Clarence S. Yoakum and Robert M. Yerkes, published by Sidgwick and Jackson, Ltd., London. Some of the Maze tests which have been found to be valuable were included in the American Army tests.

MENTAL AFTER-CARE ASSOCIATION.—A well-attended meeting of this association for poor persons convalescent or recovered from institutions for the insane was held at Bridewell Royal Hospital on Feb. 23rd by permission of the governors of that hospital. Sir Charles Wakefield presided, and made an eloquent appeal for further support. He alluded to the last year's accounts, which showed a deficit, and promised to give a donation which would wipe out the amount. After Dr. H. Rayner (chairman of the Association) had read the report, which showed the great increase in the work which has taken place during the last 12 months, Sir William Byrne moved its adoption, speaking in high terms of the way in which the association performed its duties and urging the great need for its ministrations amongst those patients who are discharged from mental hospitals. Amongst the other speakers were the Right Rev. the Lord Bishop of Barking, Dr. Hubert Bond, the Hon. John Mansfield (Lord Chancellor's Visitor in Lunacy), Mr. C. Gabain, Sir George Savage, and Mr. Ernest Sanger.

# Clinical Notes:

## MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

### A CASE OF ENCEPHALITIS LETHARGICA COMPLICATING PREGNANCY.

BY J. BRIGHT BANISTER, M.D. CAMB., F.R.C.S. ENG.,
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AND
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RESIDENT MEDICAL OFFICER, QUEEN CHARLOTTE'S HOSPITAL.

NEVER having seen any reference to encephalitis lethargica occurring in pregnancy, we felt that a permanent record of the following case would be of interest.

The patient, a primigravida of 31, in the thirty-sixth week of pregnancy, was seen by one of us (J. B. B.) on Dec. 27th, 1920, in consultation with Dr. Pearson, of Hornsey, under whose care she had been for the previous nine days. She had been perfectly healthy up to Dec. 18th, when she went to her doctor complaining that she could not sleep, but had felt very heavy about the eyes for two days. On a routine examination being made nothing abnormal was discovered, and a sedative mixture was prescribed. Two days later (on the 20th) she complained of being unable to keep awake, of great pain when she raised her eyelids, and of slight tremors in the hands.

Other symptoms gradually developed, and when she was seen in consultation the general condition was as follows:—

A rather frail-looking woman in the thirty-sixth week of pregnancy. Complexion somewhat muddy and tongue furred. A very definite bilateral ptosis was noticed, and slight weakness of the right side of the face; pulse 110, temperature normal. She answered questions rationally; no definite twitching was noticed anywhere. Her relatives stated that the mental condition has varied from time to time. No headache or vomiting throughout the illness; knee-jerks exaggerated, that on the right being the brisker; apparently a slight loss of power in right arm and head.

A tentative diagnosis of encephalitis lethargica was made, and it was decided to transfer the patient to Queen Charlotte's Hospital for further investigation and treatment.

From her friends certain other points were elicited in addition to the changeable mental condition. They noticed very early in the disease a slight unsteadiness in gait which had become gradually more marked, while during sleep they had observed what they described as a "scrubbing" movement of the right hand. Her speech also had become less distinct and more halting day by day, while she had complained of "seeing double" on the third day of the illness. Constipation had been marked throughout.

On admission, the most apparent feature was a bilateral ptosis of a marked degree. There was an internal strabismus of the right eye. Horizontal and vertical nystagmus was elicited, the latter being very marked indeed. The pupils reacted to light and accommodation sluggishly and slightly; hippus was present; some irregularity in outline of the left pupil, but no anisocoria; discs normal. The face was mask-like, and the lower left quadrant appeared to be less mobile and more flattened than the opposite side; left angle of mouth was noticed to be twitching in a lateral direction. The tongue was protruded naturally, and was not tremulous; levator-palati contracted equally strongly; muscles of mastication and deglutition appeared unaffected; special senses not impaired, except the sight as already detailed.

Mentally the cerebration was slow; speech drawn and slurred, with an attempt at tailing off the sentences into a whisper; voice at no time normal in quantity, giving the impression of a lazy and effortless response. The intensity of the mental stimulus, although varied, could not influence the rapility or the thoroughness of the reaction. Only at times was the patient noticed to be irrational in her replies.

The skin was dry and harsh, pulse rapid (110 on examination); katatonia could not be elicited. Reflexes all exaggerated; abdominal reflex not obtained, but because of the stretching of the parietes by the pregnant uterus much importance could not be attached to this fact.

The left upper limb (patient right-handed) appeared somewhat stronger than the right; no weakness detected otherwise. Triceps, pronator, and supinator jerks were obtained and were brisk. The right arm grips were all sustained and gave no impression of being lethargic in inclination. There was a peculiar pronatory movement of the right forearm, and the fingers were held in the position of writing. The rhythm appeared regular, but the frequency was not timed. The lower extremities appeared of equal and average strength; reflexes exaggerated, but clonus could not be elicited; plantar response slightly flexor; there was a marked protective reaction and the extensor fascia lata was noticed to contract. Sensation normal throughout; dermographism present to some extent. Rombergism not present, though the patient was very unsteady on attempting to provoke the sign. No ataxia. The patient had some hesitation in turning, comparable to the Parkinsonian manœuvre, and it was very apparent there was a definite list to the right side. False

pointing to the outer side of an object was noticed. In certain respects the case was of the paralysis agitans type, showing some involvement of basal nuclei and red nucleus, mask-like expression, tremor (though this was not typical), increased reflexes, difficulty in turning, and the monotonous element in the speech. There was some indication of cerebellar involvement shown by the nystagmus, the false pointing, and the list in the gait.

The rapid pulse might be possibly construed as a removal of vagal control, though vagal function was not investigated. It was noted also that though the lungs were free from disease, respiration was rapid and noisy, though the accessory muscles were not brought into use. Lumbar puncture was performed on the fourteenth day of disease; anæsthesia with chloroform was employed for a lumbar puncture, without any untoward effect. The cerebro-spinal fluid was under pressure, and 30 c.cm. were withdrawn without completely relieving it; the fluid was clear and colourless, and bacteriologically sterile. The Wassermann, Nonne, and Lange tests were all negative. The cells were much increased, 348 per c.cm. being counted (48 per cent. polynuclear). The urine was free from albumin, casts, sugar, acetone, and diacetic.

Puncture was not repeated. The pregnancy was terminated by induction on the sixteenth day of disease. The child was perfectly healthy. A second anæsthetic had to be employed to end the second stage by the use of forceps. The pains were insidious and very effective, and the child was delivered nearly four hours after induction with two gum-elastic bougies.

The treatment besides this was the four-hourly use of 10 gr. of urotropine (which gave no rise to toxic symptoms) and the production of a fixation abscess in the thigh by the injection of 20 mm. of turpentine. The patient's mental state improved after delivery of the child on Jan. 2nd, 1921. The change, however, was short-lived: incontinence of urine and fæces commenced on the 5th, lethargy increased, tremors became more marked, pupils ceased to react to light, and deglutition became very difficult. The patient died on the 7th, three weeks from the onset of the disease.

Post-mortem was not obtained. The whole course was apyrexial except for slight rise to 100° F. a few days after the setting up of the fixation abscess.

**The induction of labour was decided upon in view of the following facts: (*a*) The patient's condition was becoming continually worse; (*b*) the baby was alive; (*c*) it was hoped that the removal of the fœtus might influence the patient's metabolism for the better. The very definite improvement for the first 36 hours after delivery gave rise to great hopes of recovery, but the experience of this case leaves the question of interference with the pregnancy sub judice. It would be instructive to obtain speculations upon the advisability or otherwise of terminating pregnancy in cases such as the one under consideration.**

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A CASE OF

## ACUTE DIVERTICULITIS.

BY W. F. A. CLOWES, M.R.C.S., L.R.C.P. LOND.,

SURGEON, ESSEX COUNTY HOSPITAL.

THE following notes may be of interest, as they deal with a disease which I believe to occur more frequently than is generally supposed.

Mrs. P., aged 57, wife of a publican, was first seen for dyspnœa by my partner, Dr. E. F. Clowes, in March, 1919. She was a short stout woman, lived a rather sedentary life, and drank ale but no spirits; there were no apparent signs that she was an excessive drinker. She was not constipated and had no digestive symptoms. Dietary and treatment improved her so much that she was not seen again until Feb. 2nd, 1920, when she had an attack of diarrhœa and sickness, apparently caused by eating tinned salmon. A dose of castor oil and a bismuth mixture soon cleared this up and she did her usual work on Feb. 3rd. On Feb. 4th, whilst cleaning a fire-grate, she was suddenly seized with pain in the lower abdomen, so severe that she fainted. When seen at 3.48 P.M., about a quarter of an hour after the onset of pain, she was very collapsed, sweating, had a temperature of 97·4° F., and very small pulse, beating 146 per minute. She was vomiting at intervals of a few minutes a dark bilious fluid, and had hiccough. The abdomen was distended generally and did not move to respiration; it was rigid and very painful over the whole area below the umbilicus. The patient was removed as soon as possible to a nursing home. I saw her at 8.30 P.M. and decided to perform an operation; this was begun an hour later. She was then in such a collapsed condition that Dr. C. Sherris, the anæsthetist, considered a general anæsthetic inadvisable; the patient was extremely nervous of feeling any pain, so a whiff of ether was given, and a spinal anæsthetic administered. On opening the abdomen by a median incision I found a large quantity of purulent fluid with much recent peritonitis in lower part of cavity, especially the left iliac fossa. After mopping away the fluid I discovered the appendicæ epiploicæ were very much enlarged, being arranged on the convexity of the gut in two rows; they were of washleather colour, about the size of small grapes, and looked much like bunches of the latter. The large intestine from the rectum to the cæcum was affected in this way, but the sigmoid and lower part of descending colon was the part where the condition was most marked. The large bowel was very red, thickened, and rigid. A coil of small intestine was found attached by recent lymph to a small bunch of epiploicæ from the sigmoid, and here a leakage had evidently taken place. The condition of the large bowel and the great length affected made it impossible to do any kind of plastic operation, so the abdomen was washed out and drainage-tubes inserted.

Patient stood the operation well, considering her very collapsed condition, and on the following day was fairly comfortable but vomited frequently. This ceased on the second day, and she remained comfortable till the fourth day; diarrhœa and vomiting then set in again, continuing more or less until she died on March 3rd, 28 days after the operation.

**Unfortunately, I was unable to obtain consent for a post-mortem examination, which would have been most instructive. The appearance of the enormously enlarged epiploicæ and the way they were arranged when first seen at the operation gave the impression of malignant growth, and it was only on carefully examining it that its real condition was found out.**

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A NOTE ON

## A CASE OF SCHLATTER'S DISEASE.

BY ISAAC EBAN, M.A., B.SC. EDIN., M.B., B.CH. BELF.,

LATE CASUALTY OFFICER, ROYAL BERKSHIRE HOSPITAL, READING.

AN account of the following case is given here as it may prove of interest to casualty officers and out-patient surgeons at hospitals, besides recalling attention to a relatively rare condition.

A boy, A.W., aged 13, limped into the surgical extern of the Royal Berkshire Hospital one morning and complained of pain in the left knee of nine days' duration, idiopathic in origin. On examination the usual signs of inflammation were found in the region of the tibial tuberosity, and my first thoughts were of tuberculosis and of bursitis. The latter was soon ruled out, and as no other evidences of tuberculosis elsewhere were found, an X ray examination was made. An antero-posterior view of the knee appeared normal both on the screen and on the plate, but a lateral view revealed the typical appearance shown in the accompanying illustration. There is an irregular

Radiogram of a case of Schlatter's disease.

outgrowth of the tibial tuberosity somewhat resembling a forward displacement of the upper epiphysis, and this is quite characteristic. No history of injury could be obtained, although the boy played football for his school.

Although the ætiology and pathology of the condition are still obscure, the treatment, which is therefore largely empirical, is usually quite satisfactory, comprising (1) rest, (2) back-splint, and (3) patience. The general consensus of surgical opinion is against operative treatment except in very marked or advanced cases. The most recent reference to this condition, as far as I know, occurs in the *Archives of Radiology and Electrotherapy* for May, 1920, where two somewhat similar figures are given.

The X ray plate was taken by Mr. A. L. Watson, radiographer to the hospital.

Reading.

# Medical Societies.

## ROYAL SOCIETY OF MEDICINE.

### SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

#### CONGENITAL SYPHILIS.

A MEETING of this section of the Royal Society of Medicine was held on Feb. 25th, Dr. F. S. LANGMEAD, the President, being in the chair, when a discussion on Congenital Syphilis was opened by Sir HUMPHRY ROLLESTON, whose paper appears in full in the front part of this issue of THE LANCET.

Mr. O. L. ADDISON opened the

*Discussion from the Surgical Side.*

He said that the manifestations of congenital syphilis, which came within the province of the surgeon were, on the whole, less desolating than those with which physicians had to deal, for surgeons were spared the contemplation of the assaults made by the disease upon the central nervous system. Surgical lesions were so peculiarly amenable to treatment, if identified in time, that it was not necessary to labour the importance of early diagnosis.

The chief factor in successful diagnosis of most diseases was to be on the watch for them, for only so could one penetrate their manifold disguises, and it was a commonplace that syphilis was the most efficient masquerader of them all. Once suspected, the diagnosis in the forms of syphilis with which he had to deal could be decided by the results of treatment, with or without the help of the Wassermann reaction.

He described briefly the features of congenital syphilis. As far as rarities were concerned he would content himself with insisting again that one could not be too suspicious of lesions which, however variegated and anomalous, could conceivably be credited to a chronic inflammation.

At the present day we seldom saw the severer manifestations of the disease except in infancy; Hutchinson's triad—i.e., notched teeth, deafness, and interstitial keratitis—was uncommon, and it was much more usual for the lesion for which treatment was sought to be the only obvious sign of the disease. With the present system of antenatal treatment there was every hope that the syphilitic infant would soon be a rarity. There seemed to be no limit to the age up to which symptoms might continue to appear; at the present time he had a patient, aged 20, with old thickening of the tibiæ, who had just developed a gumma in the muscles of the leg, and interstitial keratitis. For descriptive purposes it was advisable to consider the manifestations of congenital syphilis in relation with two age-periods—viz., (1) infancy, and (2) after infancy.

(1) *Congenital Syphilis in Infancy.*

If we excepted "snuffles" there was only one common surgical lesion of congenital syphilis during infancy—viz., osteomyelitis of the long bones. It was seen most often at about 3 months of age, and started as a periostitis, rapidly becoming an osteomyelitis, and affecting as a rule the long bones of the arms and legs. The condition was generally more advanced in the arms than in the legs. X ray photographs were very characteristic. In the milder degrees they showed the periosteum raised from the shaft by a deposit of new bone. More advanced cases showed, in addition, large areas of absorption, most marked at the ends of the diaphysis.

Mild degrees of this osteomyelitis did not give rise to obvious symptoms, but he believed it to be an almost constant feature of infantile congenital syphilis, and he had frequently had X ray examination carried out in doubtfully syphilitic cases for the purpose of confirming the diagnosis. In advanced cases fractures were frequent. Owing to the absence of pain and swelling in the earlier stages, it was only the advanced cases which were recognised, and then under the entirely misleading name of "epiphysitis." The reason for this name was that changes were most advanced at the ends of the diaphysis, and consequently it was here that the tenderness and swelling were most marked. The child naturally refrained from use of any muscles attached to the inflamed periosteum, and a pseudo-paresis resulted. Later, effusion into the joint occurred, with or without a secondary infection, and separation of the epiphysis was not infrequent. He had not seen syphilitic arthritis in infants unassociated with osteomyelitis. Bending of the bone due to softening was said to occur, but he had seen no instances of this, though fractures were quite common and might cause deformity. There would be little or no difficulty about the diagnosis of these cases if X ray examination were made. He had met with no other disease which gave similar appearances in *all* the long bones.

Diagnosis had to be made from—

(1) *Periostitis and osteomyelitis of other origin*—e.g., staphylococcal, pneumococcal, tuberculous, &c. These were all extremely rare at the age when syphilitic osteomyelitis was most common—i.e., 3 to 4 months—and never did they affect all the long bones. The diagnosis was obvious from the X ray picture alone.

(2) *Scurvy.*—Here the age of the child, seldom under a year, and other obvious signs of scurvy were sufficient.

(3) *Poliomyelitis*, might be mistaken for the advanced stage of pseudo-paresis, but again an X ray examination of the long bones settled the question.

(4) *Acute infective arthritis*, which was most often pneumococcal, but might be due to almost any organism, even the *Bacillus coli* or the meningococcus. These might be differentiated readily from the syphilitic cases by X ray evidence of osteomyelitis in the latter, but it must be remembered that it was quite usual for a secondary infection to occur in the syphilitic cases.

(5) Cases of *renal insufficiency* associated with multiple fractures, such as were recently described before the section by Mr. D. H. Paterson, with X ray appearances not unlike late quiescent cases of syphilitic osteomyelitis, but the presence of albumin in the urine and a negative Wassermann reaction would indicate the correct diagnosis.

Dactylitis was extremely rare; he had only seen one or two instances.

Orchitis was the next infant lesion in order of frequency. It was common at birth or in the first month or so, and appeared as a hard, painless enlargement, usually symmetrical and accompanied by a small hydrocele. A few cases of broken-down gummata of the testicle had been recorded, the earliest at the age of 9 weeks. He knew of no other lesion for which this could be mistaken. Tubercle of the testis occurred at a later age.

(2) *Congenital Syphilis after Infancy.*

In this period bone and joint affections were still the most frequent manifestations. There were two forms of bone involvement, periostitis and osteomyelitis.

*Periostitis* occurred at the age of 3 to 4 years or later and was either diffuse or localised, the diffuse form giving rise to the well-known sabre tibia, the localised form to nodes; both were commonest on the tibia, but might occur on other long bones, and the node not uncommonly on the cranial bones and vertebræ. The diffuse form rarely broke down, whereas the node commonly did. Both forms led to the formation of a large quantity of sclerosed bone, except in the cranium and vertebræ.

*General osteomyelitis* affecting a part or the whole length of one or more long bones was much less common. It gave rise to an enormous general increase in amount and density of the compact bone, with areas of softening and formation of sequestra in the medulla. Lesser sinuses formed and the condition was clinically indistinguishable from a chronic osteomyelitis of staphylococcic or other origin. Overgrowth in length and bending might occur, or shortening if the epiphyseal cartilage was involved.

With regard to diagnosis, in diffuse periostitis the perfectly smooth even deposit of new dense periosteal bone was unlike any other condition which he knew of. There was no excuse for mistaking the rickety tibia for syphilitic periostitis.

Local periostitis in long bones might occur anywhere in the length of a long bone, but usually was near one or other end of the diaphysis. A green-stick fracture without bending or a simple traumatic periostitis might be mistaken clinically for an early stage. In more advanced cases there was often a very great enlargement of the bone, and a diagnosis of sarcoma was frequently made on clinical grounds, but an X ray examination showing the often enormous formation of dense bone would settle the question. From an enlargement due to tuberculous abscess or osteomyelitis an X ray test was conclusive, for in tubercle rarefaction and absorption with very little new formation or sclerosis of bone was usual. Many of these syphilitic cases had been described as a hypertrophic form of tuberculosis of bone. Localised periostitis of the cranial bones was frequent and often indistinguishable clinically from sarcoma or tubercle, though the latter was extremely rare.

From the local forms of osteomyelitis, tubercle and sarcoma might be indistinguishable clinically, but here again an X ray examination was conclusive, but it might not be so from a chronic abscess of bone due to staphylococcus.

In diffuse syphilitic osteomyelitis the onset was never so acute as in the more common forms due to staphylococci, &c., but a certain diagnosis could seldom be made on clinical or X ray evidence, and reliance must be placed on the presence of other signs of syphilis, the Wassermann reaction and the results of treatment.

Joint lesions were of three types; two of these were common—gummatous synovitis and symmetrical serous effusion, and one was very rare—chondro-arthritis.

*Gummatous synoritis* was seldom recognised as it was indistinguishable clinically from tubercle; in both muscular spasm and wasting were present, and it was commonly unassociated with other signs of congenital syphilis. Another point of resemblance to tubercle was that the joint might recover with simple splinting. These cases differed from tuberculous joints in that there might be considerable overgrowth, and that shortly after the removal of the splints there was perfect recovery of movement. In gummatous synovitis X rays frequently showed a layer of new periosteal bone at the end of the adjacent bones. This condition was usually monarticular, and might affect any of the larger joints.

*Symmetrical serous effusion* (Clutton's joints) most commonly affected the knee-joints. The condition was usually much more marked in one of the joints, the other frequently escaping the parents' notice. There were considerable effusion and a variable amount of synovial thickening. The symptoms were slight, little or no pain being felt except after prolonged use. Muscular spasm was absent, wasting slight, and the movements were free except for mechanical limitations.

*Chondro-arthritis* was rare, and one of the later manifestations; it was characterised by effusion, by thinning and ulceration of cartilage, and erosion of the underlying bone. The synovial membrane was thickened and fringed. Several joints were affected. G. F. Still described another type with much limitation of movement and no effusion, closely resembling a rheumatoid arthritis.

Other rarer lesions of congenital syphilis belonging to this age were:—

(1) *Gummata* in muscles, often reaching a large size. Gummata of the skin and subcutaneous tissues, unassociated with underlying disease of bone, were very rare, but cases with extreme extensive destruction of the lips and nose had been recorded. He had seen one case of multiple gummatous ulceration of the skin and one or two of rupia. As a rule the so-called cutaneous gumma was a tuberculide. The diagnosis of gummata in muscles from any chronic inflammatory mass might be impossible clinically, and recourse must be had to the Wassermann reaction, and, if necessary, exploratory operation and bacteriology or a microscopic examination. Sarcomata might generally be diagnosed by their better definition, though a diagnosis might be impossible without an exploratory operation.

(2) *Ulceration* of the hard or soft palate and glossitis were not uncommon.

(3) *Chronic enlargement of the glands of the neck*, often forming a mass of considerable size and indistinguishable clinically from enlarged glands due to tubercle or any other chronic inflammation, was fairly frequent.

*Diagnosis and Treatment.*

**Diagnosis in the presence of the commonly accepted signs of congenital syphilis—viz., depressed nose, Hutchinson's teeth, interstitial keratitis, &c.—was simple, and the diagnosis of any given lesion had only to be suspected to be immediately confirmed.**

Unfortunately, many of these cases showed no clinical signs other than the lesion for which treatment was sought, and these lesions so exactly imitated those of other and more common diseases that the correct diagnosis was not thought of. The most striking example of this mistake, in his experience, was gummatous arthritis; in these cases other clinical signs of syphilis were usually wanting and a diagnosis of tubercle was almost invariable. Unless a Wassermann reaction was done as a routine in all cases of suspected tubercle of joints and spines the majority of these cases would be missed. Congenital syphilis could, and did, imitate exactly nearly all the lesions of tubercle, and he thought that this was responsible for the statements seen in the older text-books that the association of the two diseases was very common. He had only had one case where he was able to prove the presence of both syphilis and tubercle. In doubtful cases diagnosis could only be made on the Wassermann reaction and the results of treatment.

**He would leave a detailed consideration of this to Dr. Nabarro, who had given the general treatment in a large number of his cases.**

Constitutional treatment, he considered, was all-important and he believed strongly in a course or courses of intravenous or intramuscular injections of novarsenobillon with the prolonged use of mercury; of the two drugs, he believed mercury to be of far greater value, but courses of the drug must be given over a period of many years. He preferred to use it in the form of equal parts of ung. hydrarg. and lanoline. With this he used to get excellent results before the days of arsenobillon. He had not yet known of a child with a Wassermann reaction originally positive becoming negative as a result of treatment and remaining so permanently. It was possible, and he thought likely, that in some cases the virus did die out, but seeing that latent periods with entire absence of symptoms might last for 30 to 40 years, we could not say that a patient was cured even if the Wassermann reaction remained negative for 9 or 10 years.

*Juvenile General Paralysis.*

**Sir FREDERICK MOTT described cases of infantilism, and showed lantern slides of juvenile general paralysis.**

He remarked that among 40 cases of this disease resulting from congenital syphilis only about one half showed obvious clinical signs, but the history of miscarriages, abortions, and children dying in early infancy was followed by this form of late syphilis of the nervous system. He stated that he had examined the testes in a number of cases of juvenile general paralysis and he had observed that those with infantilism exhibited arrest of development of the spermatic tubules so that they presented the same appearances as the sections of the testes of a newborn infant. The interstitial cells of Leydig were not visible and there was replacement by a lymphocyte infiltration. In cases which presented no clinical evidence of infantilism, the seminal fluid contained normal spermatozoa; in one case living spermatozoa were found in the fluid eight hours after death. These testes also showed the interstitial cells of Leydig. Although he had found spirochætes in an emulsion of the brain in 66 of 100 successive cases of G.P. he had not once found in 50 cases spirochætes in an emulsion of the testes. He had examined the pituitary body in a few cases of general paralysis and tabes, but he had never seen spirochætes or any evidence of syphilitic inflammation. He was of opinion that affection of the endocrine organs would be associated in the great majority of cases with a general spirochætal septicæmia that would terminate fatally in early infancy. He finally referred to facts pointing to the probability that the spirochæte causing tabes and general paralysis was an attenuated form—possibly, as Levaditi and Marie suggested, neuropathic, as distinct from dermatropic. The history of the majority of the cases of juvenile general paralysis did not support this hypothesis of a distinct organism.

*Treatment in Relation to the Wassermann Test.*

**Dr. DAVID NABARRO said that his experiences referred almost entirely to the V.D. clinic at the Children's Hospital, Great Ormond-street. Compared with those of some observers, his record of cases might not be a large one, but he was in the fortunate, and possibly unique, position of taking the bloods and doing the Wassermann tests, and of treating and watching the cases himself. Thus, during the year 1920 he saw 68 new positive cases, did 662 Wassermann reactions, and treated 77 patients with 530 injections.**

Until the end of last year he used novarsenobillon for the injections and with no ill-effects except a little sickness in a very few cases. He was now using neokharsivan for some patients and found that it increased the number of cases of vomiting immediately after the injection. Intravenous injections into an arm or the external jugular vein, but never into the superior longitudinal sinus, were given whenever possible. In the absence of a suitable vein the injections were given intramuscularly, and the drug was used in simple watery solution for both kinds of injection. For infants under 1 year the initial dose was 0·05 g., increasing to 0·1 or 0·15 g. For larger children the initial dose, according to the size of the child, was 0·1 or 0·15 g., increasing to 0·3 or 0·45 g. A course consisted of six weekly injections of N.A.B. and simultaneous inunction with mercury ointment. At the end of the course some potassium iodide or syr. ferri iodidi was given for three weeks and then a Wassermann test taken. If necessary the course was repeated once or twice or even more often. Several of his patients had had 18 to 24 injections totalling from 5 to 7 or 8 g. of N.A.B., and one boy had had over 10 g. of galyl and N.A.B. in 28 injections without any ill-effects and, it should be added, with no effect upon the very strongly positive Wassermann reaction of his blood.

With regard to the Wassermann test, he had great faith in this when *reliably* done, and believed that a "strong positive" always means syphilis. One must remember, however, that a positive Wassermann did not always prove that a particular lesion in a child was syphilitic in nature. Thus he had seen a tuberculous bone lesion in a syphilitic child and quite recently a case of poliomyelitis. A negative Wassermann did not always preclude

syphilis. Very young children might give a negative reaction, so that he invariably tested, whenever possible, the blood of the mothers of infants under a year. The mother's blood was practically always positive (but varied in degree) when the child's blood was positive. Very rarely was the mother's blood negative when the child's was positive. He had found that the father's blood was frequently negative. Other children in the family might have a strongly positive Wassermann reaction. He was treating some of these cases, even in the absence of any symptoms, in the hope that thereby the later manifestations of congenital syphilis—especially the serious eye and ear lesions—might be averted.

As a result of the combined treatment with arsenic and mercury many of the patients were much benefited, but it was as yet too early to say that they were cured. Hearing might improve, ulcerations of the palate heal quickly, hæmoglobinuria be prevented, even mentally defective patients become brighter and less noisy and troublesome to their parents, as well as more intelligent. The keratitis cleared up more thoroughly perhaps than with mercury alone, but he could not say if the duration were shortened. Many of the young patients developing a rash at four, five, or six weeks died in spite of the treatment.

In congenital syphilis, so far as his experience went, the Wassermann reaction could not easily be made negative. As already mentioned, one patient had had over 10 gr. of arsenic compound and much mercury, and his blood was still very strongly positive. Out of 62 treated cases the Wassermann reaction had at some time or another become negative in only 14, and in five of these cases it had since become positive again.

Lastly, in view of: (1) the difficulty of certainly curing cases of congenital syphilis; (2) the heavy infantile mortality for which syphilis was directly and indirectly responsible; and (3) the large amount of mental and physical disability which congenital syphilis produced—especially mental deficiency, impairment and even total loss of sight and deafness—it was obvious that attempts should be made to treat the child before it was born by treating the mother. It had now been abundantly proved that by treating a prospective mother by the combined method she would be delivered of a healthy child, in most cases.

*Obstetric and Antenatal Standpoint.*

Dr. AMAND ROUTH said that he wished to speak from the obstetric and antenatal standpoints, for congenital syphilis could never be stamped out unless the infected fœtuses were treated through their mother during pregnancy. Probably the deaths of the embryos and fœtuses were as numerous during their mother's pregnancies as the deaths of the surviving infants during the first year of life, which latter, in 1919, amounted to 61,715. It had been estimated that in each of these periods about 16 per cent. of the deaths were of syphilitic origin, which would mean that 20,000 potential citizens died annually between fertilisation of the ovum and the end of the infantile year. Many of the intra-uterine deaths would occur very early in pregnancy, before nature's protection or treatment of the mother could effectively operate, and the abortions would be unrecognised as such.

The infantile deaths of syphilitic children would occur chiefly at two periods, the one during the first week or two after birth, due to the debilitated newborn children being unable to stand the strain of birth, the other later on in the infantile year when congenital syphilitics, born apparently healthy, had become clinically syphilitic. The tendency for weakened children to die soon after birth was shown by the fact that in 1919, out of 61,715 infantile births 8383 died in the first 24 hours of life, and 9388 in the first six days, together being more than a fourth of the infantile deaths. The reduction of infantile mortality in 1917–18–19 had been entirely from reduction of causes operating in the later months of the infantile year.

Owing to the absence of a scheme of confidential death certificates in this country (alone in this respect amongst European countries) the mortality of congenital syphilitic children who had not been treated through their mothers during pregnancy was not known; but Dr. Helen Campbell, head of the Infants Health Department in Bradford, reported that in 1918, out of 1606 children under her care, 148 died, and of them 120 (81·08 per cent.) were congenital syphilitics. Of the 107 legitimate children who died, 83 (77·5 per cent.) had congenital syphilis, and of the 41 illegitimate children who died 37 (90·2 per cent.) had syphilis. Dr. Helen Campbell said that these deaths of congenital syphilitics were due to the fact that they were peculiarly selected for attack by respiratory and gastro-intestinal and specific (measles) infections which killed them in much larger numbers than infants not so affected. Obviously these children, infected from their conception, must be treated during their mother's pregnancy if they were to be born healthy. Up to 1905 pregnant mothers who had previously had syphilitic children were treated by mercury from the third month of pregnancy, and healthy children were born and reared, but the treatment had to be adopted at each subsequent pregnancy. Was this necessary now under salvarsan treatment? There was no doubt, however, that treatment should be begun as early as possible, though Mr. John Adams, Mr. Charles Gibbs, Dr. J. H. Sequeira, and Dr. Morna Rawlins had proved that treatment of the pregnant mother by salvarsan could be begun as late as the seventh or eighth month, with the great probability that a healthy child would be born. This was a surprising result. Such a cure could not happen in cases where the child's organs were already diseased and full of active spirochætes, but only where the infection was in a quiescent stage rendered latent by natural agents.

*Latent Syphilis in Pregnancy.*

The fact of latent syphilis in pregnancy was now admitted to be frequently present, especially as regards the child. If this were not so, no infected fœtus could live in utero for nine months with active syphilis progressing. The ovum could be infected at fertilisation or soon after, whilst implanted in the uterine mucosa, by early granule stages of the mature spirochætal organism. These granules were the result of the spontaneous breaking up of the spirochætes. Noguchi had described how he had reared such granules in a series of cultures from 1910 to 1917 and had seen them "sprout" and develop into the mature spirochæte capable of infecting monkeys and rabbits. Sir F. W. Mott had quoted O'Farrell and A. Balfour to show that injection of salvarsan caused shedding of granules from the *Spirochæta pallida*, and he himself believed that a similar result was obtained by the action of the syncytial toxins formed throughout pregnancy, during the trophoblastic action of the cells of the chorionic villi, whilst burrowing into the maternal tissues at the placental site, at the point of union of the mother and fœtus. The infection was, he believed, rendered latent by the granules being kept biologically inactive, perhaps by the prompt destruction of their delicate reproductive "sprouts." In such cases the child would be infected by the inhibited granules and have a negative Wassermann, and if the mature organism were absent also from the mother's tissues she also might be negative during the pregnancy. If the mother had not been treated during her pregnancy the child might be born apparently healthy owing to the infection being latent, but as the syncytial toxins (or "chorionic ferments") disappeared from its tissues, the granules would begin to develop into the mature organism and the child would give a positive Wassermann reaction, owing to enough antibodies being produced to excite a general reaction in its blood; the child would then become clinically syphilitic. Occasionally, the natural protection afforded by this syncytial action would be so strong that the granules would not only be inhibited but destroyed, and the child would be born free of syphilis. This explained the occasional birth of a healthy child amidst a series of stillbirths or infected children.

The cause of death was "unknown" in about 25 per cent. of stillbirths, and in a larger proportion of abortions. Dr. Eardley Holland was working at this problem and considered that in the absence of spirochætes, chondro-epiphysitis was a certain sign of syphilis, whilst enlargement of the liver and spleen were less certain indications. He thought that further research would reduce the large class of "unknown" cause of death in macerated fœtuses and increase the class of cases due to syphilis. It might also be possible, by staining or culture, to recognise earlier stages of the mature organism. With our present knowledge congenital syphilis could be prevented or cured if every syphilitic mother were treated, not only during her pregnancy but in anticipation of the next pregnancy, till she was definitely cured. The child might, however, need treatment after birth for a length of time not yet agreed upon. There must be serious cases of embryonic fœtal infection where it was not rendered latent early enough to save the child's life, but all such cases would terminate in abortion or stillbirths. All other cases seemed to be amenable to modern treatment during pregnancy up to the seventh or eighth month.

The real difficulties were, he said, (1) to get the mothers under medical supervision for diagnosis and treatment; and (2) to be able to enforce treatment for a sufficiently long time to get the desired result. If these difficulties could be surmounted congenital syphilis could be stamped out by antenatal treatment of the mother.

*Blindness and its Associated Symptoms.*

Mr. BISHOP HARMAN described the associated symptoms found in 600 cases of children blinded from the effects of congenital syphilis. He stated that the cases

were the collection of 17 years, and that they had been under his care for an average time of six years, so that there was ample opportunity for observation.

Dividing the cases into two groups as to whether the front or back parts of the eyes showed the most manifest inflammatory effects, he found 398 cases of interstitial keratitis and 229 cases of disseminated choroiditis. Amongst the group of interstitial keratitis the main associated symptoms were: Hutchinson's teeth, 265; physiognomy, 115; iritis, 128; bad family history, 170; scarred mouth, 61; bone or joint disease, 26; ulceration of nose or palate, 15; deafness, 63. Amongst the group of disseminated choroiditis numbering 229 there was optic atrophy in 117; Hutchinson's teeth, 97; physiognomy, 53; bad family history, 115; bone or joint disease, 19. deafness, 51. Comparing the frequency of the chief associated symptoms of the two groups, it was found that the characteristic teeth were present in 73 per cent. of keratitis and 46 per cent. of choroiditis, bad family history in 47 per cent. of keratitis and 55 per cent. of choroiditis, gross mental disorder in none of the keratitis cases but in 41 per cent. of choroiditis. Bad family history was shown by the high rate of miscarriage, stillbirth, infant death, and diseased children. Amongst 150 syphilitic mothers there were 1000 pregnancies, with only 390 presumed healthy children. Amongst 150 average hospital mothers there were 826 pregnancies, with 654 healthy children, or 792 per 1000, so that the average mothers produced twice as many presumed healthy children as the syphilitics.

The discussion will be reopened on Wednesday, March 16th, at 8.30 P.M., by Dr. Morley Fletcher, and continued by Mr. John Adams and others.

## COMBINED MEETING OF CLINICAL, MEDICAL, AND SURGICAL SECTIONS.

### GRAVES'S DISEASE: ITS MEDICAL AND SURGICAL TREATMENT.

THE adjourned discussion on this subject was continued on Feb. 25th, Sir ANTHONY BOWLBY, President of the Clinical Section, being in the chair. A report of the opening of the discussion appeared in THE LANCET of Feb. 19th (p. 379).

*Surgical Treatment of Hyperthyroidism.*

Mr. DONALD ARMOUR, in reopening the discussion, said that it was regrettable that a name based on its pathology had not yet been adopted generally for the symptom-complex. "Exophthalmic goitre," descriptive of two of its most obvious symptoms, was often a misnomer from the absence of one or other or both of them. Moreover, the addition of the qualifying terms "true" and "false" would only add to the confusion. He would urge that the term "hyperthyroidism" should more generally be applied to this disease as being a more accurate and scientific description. His experience of the surgical treatment extended over some 15 years and included about 200 cases. Surgical treatment was based on the view that this disease was primarily one of the thyroid gland, and that the resulting symptoms were due to a disturbed function of that gland "probably to hypersecretion of materials which induce a sort of chronic intoxication" (Osler). Surgical treatment was directed to lessening the overaction of the gland or diminishing the amount of its perverted secretion, either by reducing its blood-supply by ligation of arteries or by ablation of more or less of the gland substance. These results were more certainly and more permanently attained by surgical treatment than by other means. With greater experience in operative and anæsthetic technique and increased knowledge of the disease the surgical risks had been greatly reduced in the last few years.

The general anæsthetic bogey, he hoped, had been laid finally to rest. A technique evolved by a skilled anæsthetist from long experience of these cases, one with whom he had worked in frequent association, had relieved him from all anxiety with regard to the anæsthetic, which in his practice was always a general one. In those cases in which, from the condition of the patient, it was thought advisable to "steal the gland," as Crile called it, the method carried out by his colleague, Mr. H. M. Page, was briefly as follows. The preliminary treatment was described to the patient as consisting of hypodermic injections and rectal enemata. For several days preceding the operation hypodermic injections of distilled sterile water were given, followed by small saline injections per rectum. The saline was changed to olive oil for a day or two, and finally on the day fixed for the operation—of which the patient had no knowledge—a hypodermic of morphine and atropine was given, followed by ether and olive oil by the rectum. He had found rectal ether an ideal anæsthetic for these cases. Chloroform as an anæsthetic should never even be mentioned.

The anæsthetic bogey looked like being replaced by another, that of damage to the recurrent laryngeal nerve. Unquestionably injury to this nerve might take place, and was a very serious operative result, but it could be avoided by skill and experience. A specimen had recently been shown in which the recurrent laryngeal nerve before going into the larynx broke up "into a leash or plexus." The opinion was expressed that "that was probably invariable, and it was almost impossible to enucleate the lateral lobe of the thyroid without damaging one of these branches." On this question he had consulted Professor Arthur Keith, who had told him that he had knowledge of such behaviour from the work of Mr. F. G. Parsons, but that it was "probably invariable" he did not agree. Nor did a search of the specimens in the Hunterian Museum reveal a single example of such behaviour. Nor did Professor Keith agree with the second deduction, because the nerve neither entered the gland nor pierced the capsule, and could easily be avoided with reasonable care during the operation. The requisites, in addition to a knowledge of the anatomy, were the use of the greatest gentleness and deliberation in that part of the operation which had to do with the gland itself. He thought that the risk was still further reduced by following Charles Mayo's suggestion of wiping down the capsule off the gland with gauze. Moreover, the inferior thyroid vessels should be secured within the capsule as near the gland substance as possible. "Considerable traction on the gland and free use of the scissors," as described by one writer, would certainly, sooner or later, result in injury to this important structure.

With regard to the amount to be removed, he had always acted empirically and removed one lobe, the larger if they differed in size, together with the isthmus. Other surgeons did likewise, and advised further subsequent removal if indications arose. Might not this method result in the removal of too much gland at the first operation? It was so in the case he had shown. A hemithyroidectomy had been done with excellent results as far as the hyperthyroidism was concerned, but the patient had now gradually developed symptoms of hypothyroidism, controlled only by thyroid extract. Would it not have been sufficient to have tied the superior thyroid arteries? Ligature of the arteries had a definite place, either as a preliminary to future gland removal, or as the only operation necessary. He had been struck by the excellent results obtained by ligature alone in a few cases. These two operations alone should have a place in the surgical treatment of the disease.

Every case at any period of its course was not suitable for surgical treatment, nor should surgical operation be blindly applied to every case. The surgical treatment of hyperthyroidism was *not* an emergency operation, and cases should come to operation only after such treatment by rest and medication had been undergone as was necessary to make them suitable for operation. The symptoms contra-indicating immediate operation were progressive and rapid emaciation, acute cardiac dilatation and myocardial exhaustion, persistent vomiting and diarrhœa, and marked mental symptoms. In general terms acute cases were also unsuitable for operation immediately. On the other hand, the cases called by Kocher "secondary Graves's disease" were particularly suitable for surgical treatment.

*Treatment by X Rays.*

Dr. FLORENCE STONEY gave particulars of 200 cases showing the benefit accruing from treatment by X rays; 185 were of women and 15 of men.

Graves's disease, she said, was essentially a disease for the physician. Two lines of treatment were indicated, one to lessen the activity of the thyroid, the other to remove the cause, the bacterial toxins responsible. The radiologist or surgeon was necessary in every case to complete the former. X rays acted as a specific; they brought about partial atrophy of the thyroid gland, which could be stopped at any time it was thought desirable. In the early cases the action was rapid, but in chronic cases, and in later stages much patience was required to get satisfactory results. X rays attained the same aim as the surgeon without danger or pain. The three disadvantages were the delay in obtaining results, telangiectases at the site of the application, and scarring of the neck by prolonged treatment in chronic cases. An essential to the treatment was removal of the primary cause and control of the source of toxæmia, whether oral sepsis, otorrhœa, chronic appendicitis, intestinal stasis, or other source. Additional measures of value were mental quietude and endocrine therapy.

It was not advisable to wait for exophthalmos or goitre before making the diagnosis or commencing treatment, and considerable reliance in early stages could be placed

upon the rapid pulse and toneless first sound. The disease required treatment from the dentist, physician, and radiologist working in combination.

*Results of Treatment at Guy's Hospital.*

Dr. J. M. H. CAMPBELL had investigated the results of the cases of Graves's disease treated at Guy's Hospital from 1908–17 with a view to comparing the figures with those of Sir William Hale-White of an earlier series, and to estimating the prognosis.

There were 127 cases, of which 8 terminated fatally in hospital, either directly from Graves's disease or from terminal infections; 1 patient had died from carcinoma of the pancreas. Eighty of those discharged from hospital had been traced for periods of from 4 to 12 years; of these 7 died from exophthalmic goitre and 5 from other diseases. These 80 cases, together with the 8 who had died in hospital, were arranged for statistical purposes into five groups. Group I., cured completely 7, or 8 per cent.; Group II., almost cured with but few signs remaining 26, or 30 per cent.; Group III., much improved and able to do light work 29, or 34 per cent.; Group IV., little or no improvement 11, or 13 per cent.; Group V., died (8 in hospital, 7 afterwards) 15, or 15 per cent.

The percentages were calculated on the total number of 127 cases, making use of the assumption that among the 38 not traced the relative results were the same as among the 80 who could be traced. In arriving at a comparison between surgical and medical treatment 5 cases treated surgically were excluded, as they died within a year and therefore came among cases which many surgeons would have considered inoperable. There had been no deaths from the operation itself. The cases which formed the basis for these figures were 16 treated surgically and 56 treated medically. The figures for the corresponding groups were as follows: Groups I. and II. (cured and almost cured), surgical 38 per cent., medical 41 per cent.; Group III. (much improved), surgical 38 per cent., medical 28 per cent.; Group IV. (not improved), surgical 12 per cent., medical 17 per cent.; Group V. (died), surgical 12 per cent., medical 14 per cent. He suggested that the reason why a second operation might become necessary was, perhaps, that after the first operation the gland responded again to the stimulus, whether psychogenetic or toxic, which had provoked its original enlargement. The results were too few for definite conclusions, but showed that partial thyroidectomy was not always so preferable that one ought to forget the possible danger of operation and advise it on every occasion.

*Selection of Cases for Operation.*

Mr. W. H. C. ROMANIS considered especially three aspects of the question: (1) the selection of cases for operation; (2) the nature of the operation to be done; and (3) the after-results of operative treatment. It was not unusual, he said, to find that some observers labelled many cases "Graves's disease" when the symptoms and physical signs were not sufficiently pronounced to merit that name. Nor was it unusual to find patients with adenoma of the thyroid, parenchymatous goitres, and even malignant thyroids, exhibiting palpitation, nervousness, rapid pulse, and tremor, but he did not regard these as Graves's disease, and thought that the name should be applied only to those patients who in addition had a noticeable change in the eyes, and definite cardiac enlargement.

1. As regarded the decision whether such a case was likely to benefit by operation, we must consider whether mild cases should not have medical treatment first; if all signs and symptoms were slight, not progressing, and of short duration, medical treatment would often give benefit, though frequently only temporary. But in moderately severe cases or in patients in whom any one sign or symptom was present to a marked degree and progressing, medical treatment was only of value as a preliminary to operation, and should only be indulged in for two or three months. Unfortunately, many patients were not advised to have surgical treatment until the condition was so severe that risk of operation had to be balanced against the benefits which might follow it, though in dealing with so serious a disease a small risk was justifiable in an attempt to obtain a cure. He did not regard great rapidity of pulse-rate, irregularity, marked cardiac dilatation or fibrillation, acetonuria, diarrhœa and vomiting, serious loss of weight as any contra-indication to operation, provided that the patient was anxious to have operation done and that her mental condition was moderately good. Marked nervous excitability (almost always present) was no bar to operation, but melancholic, delusional, or maniacal symptoms forbade operation, for it would lead to no improvement. Age of over 60, diabetes, great fear or unwillingness to have operation, or œdema due to a failing heart, contra-indicated surgical treatment. Patients who submitted to operation unwillingly did not benefit from it as much as those who were anxious to have it done; but most of the hypersensitive, nervous patients willingly underwent operation.

2. The nature of operation to be done. Removal of a large portion of the thyroid gland was the procedure of choice. Whatever the cause of the enlargement might be (infection possibly) the enlarged gland was the factory of the symptoms, and by reducing its activity we could cure them. Hemithyroidectomy was never sufficient; one lobe, the isthmus, and at least a quarter of the other lobe, was the minimum amount to be excised. Hemithyroidectomy would produce an improvement, but not a cure. It was most important not to leave behind small portions of the lobe which was being removed, on the recurrent laryngeal nerve or on the superior thyroid artery, as was done by some surgeons, and also that the tongue-shaped process which often passed behind the larynx should also be removed, for otherwise the pieces left behind hypertrophied and caused persistence of symptoms and subsequent relapse. Milder cases could safely be operated on under open ether or rectal ether, but severe cases were subjected to a much smaller risk if done under local anæsthesia; anxiety and fright would not in this case be present if morphia and hyoscine were first given; if this was done 90 per cent. of the patients declared afterwards that they had no recollection of the operation at all, even though they might have cried or talked during it. Many patients asked to have it done under local anæsthesia. In very severe cases a second or even a third operation might be necessary.

3. The after-results. In the very severe cases the patients seemed to obtain even greater relative benefit and were more pleased with their improvement after operation than were those more slightly affected. As regards mortality, out of about 220 thyroidectomies done for this condition, mostly under local anæsthesia, five had died (two of pneumonia) a mortality of just over 2½ per cent. Many of these patients had pulse-rates of over 170. Usually after thyroidectomy there appeared to be more improvement in the subjective symptoms than in the physical signs. Patients looked better and felt much better within a day or two, but the physical signs might take some weeks to improve. As a rule, four months after an adequate thyroidectomy patients felt well, slept well, ate well, and could do their day's work and put on weight, but the pulse-rate, though much slower, was not quite normal; the cardiac dilatation was very much less. Irregularity of pulse, diarrhœa and vomiting, and acetonuria invariably disappeared, but the eyes, though much less prominent than before, rarely returned completely to the normal. It might be thought that if even more thyroid tissue had been removed these physical signs would be improved still further, but he doubted it. For though a second operation was often worth while if the subjective symptoms had not quite gone, it did not produce much further improvement in the eyes and pulse-rate, whilst in the few total thyroidectomies he had done for Graves's disease the physical signs had never quite completely disappeared. He would like to receive information on the following points: Were not the parathyroids a physiological myth, and did they really exist as functioning organs? After complete removal of the whole thyroid gland for malignant disease or for Graves's disease, and after the second and third operations for removal of thyroid tissue, all done without paying the slightest attention to the parathyroids, he had never seen any symptoms of parathyroid insufficiency, and he knew no surgeon who had. In fact, tetany seemed to be more common after gastric operations than after thyroid operations, and he was tempted to doubt whether in man the parathyroids played so important a part as the physiologists would have us believe.

*Surgical Treatment of Medical Failures.*

Mr. A. J. WALTON said that his experience of exophthalmic goitre was based upon 101 cases which were in a sense selected cases, since all had had medical treatment which had failed to cure them. If operative treatment was to be accepted as a routine measure two premisses must be granted: (1) that the disease was due to hypersecretion; (2) that the results of medical treatment were unsatisfactory. The experimental and clinical evidence were both strongly in favour of the disease being due to hyperthyroidism. The actual results of medical treatment could only be determined from the published statistics, and in the past these results had not been good. The mortality appeared to be about 25 per cent., and there was no question but that medical treatment often had to be prolonged over a course of many years. He was much interested to hear Dr. H. Mackenzie state that the results of medical treatment were unsatisfactory in some cases. This had been his own opinion, but it was based upon no direct

evidence. Sir William Hale-White had given figures which at first sight appeared to favour medical treatment. His figures as published in his paper of 1912, if he interpreted them right, showed that only 102 cases were traced out of a total of over 200, and did not include a series of 18 that died in hospital. If this was so the results are valueless, for we had no knowledge of the mortality in the untraced cases, so that the total mortality might be anything from the 156 given by Sir William Hale-White to over 502. It was his custom never to operate in the first six months of the disease, for in this period the most beneficial results would be likely to accrue from other measures; thus every case upon which he had operated had been treated for six months or more, and many had been under treatment for as long as 10 to 15 years. His experience of these patients had been that while they were in bed having complete rest their condition was considerably improved; but that as soon as they were up and about again and attempted to work their disease relapsed, and that few, if any, had been able to live a normal life while undergoing treatment. He had found that the results of X ray treatment had been little, if any, better. He must admit, however, that, as in the case of medical treatment, it was mainly the failures that had come to him seeking further advice. His experience was based upon three groups of cases:—

(1) Eleven had come to him after X ray treatment, from which they had obtained little or no relief. Many of them had had treatment under different physicians for over a year. It was important to note that they came from all areas, so that it could not be claimed that the bad results were due to incorrect technique. All of them showed very considerable disfigurement from widespread telangiectases of the neck. Two stated definitely that while under X ray treatment their symptoms were greatly increased and that the thyroid became much more swollen. One of them developed carcinoma of the skin, which, although removed with a portion of the thyroid later, led to the death of the patient.

(2) Four which he operated upon in his early series relapsed after hemithyroidectomy, which he now knew to be insufficient. The symptoms were, as a rule, mild, and therefore they were especially suitable for X ray treatment. Although given a trial with this method they obtained no relief whatever.

(3) One was seen in the early stages when operation was considered inadvisable. In this patient the X rays were combined with medical treatment and the patient made a complete recovery.

It was his custom to advocate medical treatment:—

(1) In the first six months of the disease. During this period cases were transferred to a physician and the treatment usually consisted of rest, drugs, and X ray applications.

(2) As a preliminary to surgical treatment. As long as the patient was kept in bed and at complete rest very considerable improvement would follow, and no operation should ever be undertaken until such a preliminary course had been given.

(3) For certain cases where probably too small an amount of thyroid had been removed. They reached the third stage after operation, but failed to progress further. Medical treatment would then often help them to make a complete recovery. In all other cases operation is advocated.

In performing the operation he laid stress upon the importance of the following details.

*Selection of the time of operation.*—There could be no question but that the safety of the operative measures largely depended upon the careful selection of the time. Sometimes there were in the first six months or so very acute symptoms, and if an operation was then undertaken the mortality was likely to be high. With careful medical treatment the symptoms often abated, but having reached a more chronic stage failed to make further progress. It was in such a stage that the operation should be undertaken. All cases showed a very marked periodic variation. It would be noted, if a pulse and temperature chart were kept, that there were waves of exacerbation and depression, and that a period of exacerbation always follows any excitement, such as moving the patient to a hospital or nursing home. It was most essential that the operation be delayed until a period of depression of the symptoms. Hence no operation should ever be performed immediately after the patient had been moved to a hospital or home. He believed that two of the deaths in his early cases were directly due to the fact that he did not realise this important point. He had not found the variation which had been described by Mayo, who stated that the best time to operate was either within the first six months or after the end of the first year, and that there was an exacerbation in the second six months, during which operation became a more risky procedure. In his experience if the patient were carefully watched operation could as successfully be undertaken during this period as in any other.

In the late stages of the disease secondary changes occurred, especially in the heart and kidneys. The mortality of operations undertaken in this period would be high, but with any other form of treatment the disease would steadily progress and the only hope of arresting its progress lay in operative treatment. The risk should therefore be carefully explained to the relatives, but operation should never be postponed because of these complications. He had one case where the disease had been in existence for eight years and very marked cardiac changes were present which quite incapacitated the patient from working. Since operation the man had improved enormously, and although the heart beat was still most irregular he was able to live a useful and happy life.

*Selection of the type of disease.*—There were three clinical types, two of which alone were true examples of exophthalmic goitre.

(1) The vascular type, which was most commonly seen in young women. The thyroid was large and there was much pulsation. There was a rapid pulse and well-marked exophthalmos. The chief complaint was dyspnœa and palpitation. Nervous symptoms might be present, but were not the chief factor in the disease. This type showed, as a rule, very good results after operation. The mortality was low and the progress after operation rapid.

(2) The nervous type, generally seen later in life and most commonly found in women at or about the menopause. The thyroid was often but little enlarged. Cardiac symptoms and exophthalmos were present, but not so obvious. The chief trouble was centred around the nervous system. The patient was very nervous, with tremors and erratic movements, so that she could hardly sit still, and her condition somewhat resembled chorea. The prognosis was less satisfactory. The mortality was slightly higher and improvement was slower. Some of them had definite mental symptoms; if there had been any form of mental disturbance before operation the mortality was likely to be much higher.

(3) Hyperthyroidism with adenoma. These were not examples of exophthalmic goitre at all, but were often included. There was a localised soft adenoma in one or other lobe which was associated with considerable evidence of hyperthyroidism, but never with complete hyperthyroidism. In no case so far had exophthalmos been present. These were the most satisfactory cases to operate upon. The mortality was negligible and the progress extremely rapid. The hyperthyroidism might cease completely within a fortnight after operation. It was often stated that the good results of surgical statistics were in large part due to the inclusion of many cases of this type. His series, however, did not include a single example of this variety.

It was important to remember the risk of operating for some other condition in a patient, the subject of hyperthyroidism. These patients seemed especially prone to gynæcological lesions, and he had seen a considerable number of cases with Dr. R. Andrews where the patient had been suffering with a uterine fibroid or some ovarian lesion. Operation elsewhere upon the body was associated with the same risk of increased hyperthyroidism without the relief gained by removal of a portion of the thyroid. For this reason he always advocated that wherever possible the thyroidectomy should be performed first. Later, when the condition was improved, the other operative measures could be carried out with relative safety.

*Choice of operation.*—The two chief dangers at operation were dependent upon pressure upon the gland and upon hæmorrhage. There was no doubt that if the hæmorrhage was severe the reaction after operation was much more marked. Owing to the dangers of pressure a wedge resection should never be performed. The portion of thyroid to be taken out should be removed by slow and careful dissection, all the vessels being ligatured before they were divided. He had never yet performed the operations of preliminary ligature or of injection of boiling water. By carefully selecting the time of operation the condition could be so improved that a partial thyroidectomy could be performed with safety. He was willing to admit, however, that some of the more severe cases could be much benefited by a preliminary ligature, and that it might render the later operation safer. He considered the operation of partial thyroidectomy to be the one of choice.

*Preparation for operation.*—Much of the success of the operation was dependent upon careful preparation of the patient. Stress had already been laid upon the importance of keeping these patients under medical treatment until their symptoms had abated. During this period it was his

custom to have saline injections administered. They were given three-quarters of an hour before the time at which the operation would be carried out upon the appointed day. They seemed definitely to diminish the toxæmia and to lessen the symptoms. The choice of anæsthesia was extremely important. The evidence appeared to be convincing that there was real danger in the use of chloroform, and that the very high mortality which had been reported in the earlier series was dependent upon the use of this drug. Personally, he disliked operating upon patients under a local anæsthetic, and especially patients so extremely nervous. He believed that the anticipation of the operation might lead to an increase of the nervous symptoms. It was therefore his custom, wherever possible, to carry out the operation without the patient's knowledge. The relatives were informed but were asked not to communicate the fact to the patient. On the day of the operation the customary rectal saline was replaced by olive oil and ether, 3 ounces of each being given per rectum. Within half an hour the patient was quite unconscious and was then taken to the theatre. The dose was a minimal one and its effects were not sufficient to last through the operation; the anæsthesia was therefore continued with open ether, but as a rule only 1 or 1½ ounces was necessary.

*After-treatment.*—After describing his operative technique Mr. Walton said that after every operation there was a period of reaction which was probably due to hyperthyroidism following the trauma. The tube should therefore be kept in place until the temperature was normal. In one case in which it was accidentally removed too soon the patient had an acute attack of hyperthyroidism. It was rapidly reduced when the tube was re-inserted. On reaching the ward a rectal wash-out was given to remove the olive oil and ether and frequent rectal salines were given. If the patient was at all restless morphia was given without stint. No harm could arise if it was administered only when the patient was restless, and he had not uncommonly given as much as 2 gr. in separate ¼ g. doses within the first 24 hours.

*Operative results.*—Of the 101 cases there had been an immediate mortality of five. There was no question but that this was too high. Three of the deaths occurred within the first 50 cases, and two of them were almost certainly due to the operation being performed at an unsuitable time. Of those that recovered from the operation five have died later. One was due to an X ray carcinoma, and should not therefore be included. Two developed a fatal diabetes and two died with cardiac symptoms probably directly due to the hyperthyroidism. Of the remaining 91 cases 52 were cured, 23 had been so relieved that, although they still showed exophthalmos and a pulse which was considerably increased, were yet able to live normal lives and earn their own livings—that is, 75 per cent. had been changed from disabled wrecks into people who were capable of living normal lives and of earning their own living. Eight had had but slight relief and two were no better. They had developed marked hypertrophy of the remaining portion of the thyroid. Possibly, if they would consent, relief might be gained by further operative measures. Three had relapsed until their condition was nearly as bad as formerly, and three had been lost sight of. In considering the after-results of operation, it must be remembered that for a certain period the symptoms would continue, for the amount of thyroid removed had to be more or less empirical, and in order to be on the safe side rather too much was sometimes left. It was only when this diminished that the symptoms decreased. Careful observation after operation would show that the progress might be divided into the following stages:—

(1) The stage of reaction, which lasted for two or three days after operation. The hyperthyroidism was much increased, as shown by a raised temperature and pulse, and by marked restlessness. It was in this stage that a fatal result was likely.

(2) The primary improvement. This was the period which followed immediately after the reaction, and the improvement was often most remarkable. The exophthalmos might be diminished, the pulse, which had been 120 or 160 before operation, might fall to 80 or 90, and the nervous symptoms might abate enormously. It was a remarkable thing that many of the patients had shown a complete amenorrhœa for several years before operation, but during this period of primary recovery the catamenia might reappear and might be regarded as one of the first evidences of improvement. This stage persisted as a rule for two or three weeks.

(3) The stage of relapse. After the patients had left the home or hospital they suffered from a certain amount of relapse which might often cause considerable disappointment. If the case was progressing favourably it would last for only two or three months. Sometimes it might be prolonged for six or nine months, and if insufficient thyroid had been removed or if there had been much hypertrophy of the remaining portion the patient might continue in this stage. Those cases in which there had been little or no relief belonged to this group.

(4) The stage of apparent cure. This period, during which the patient was apparently well, but might relapse under any severe stress, might persist for two or three years. It was most in evidence during the war. Several of his patients who were apparently quite free from symptoms were exposed to air-raids, and within a short period of time had a very definite relapse of their symptoms.

(5) The stage of complete cure. This followed the last at an indefinite period. It was difficult to say when it had been entered upon, but apparently a time arrived after which the patient might be exposed to severe stress with no more fear of hyperthyroidism than would occur in a normal person.

*The Basal Metabolism Test.*

Professor H. G. EARLE said that for two months he had been using the basal metabolic test, which in theory was based upon the assumption that the thyroid sets the metabolic rate. With hyperthyroidism the metabolic rate was increased. He considered the test to be of value. By Benedict's apparatus, which he had been using recently, a direct measure could be obtained of the oxygen consumed. He had experienced great difficulty in taking the readings at first, but by means of an improvement whereby graphic records were obtained it was now possible to secure a very accurate measurement. The metabolic rate usually followed the pulse-rate, a high pulse-rate being generally accompanied by a high metabolic rate. There were other groups of cases, however, in which either a high metabolic rate was accompanied by a low degree of tachycardia or a low metabolic rate with a high degree of tachycardia. Cases with a high metabolic rate after a period of rest in bed were unfavourable for operation.

Mr. J. E. ADAMS said that the bad results of surgical treatment were in part due to the use of chloroform and want of gentle handling. A great merit of local anæsthesia was that it compelled gentle manipulation. Ether anæsthesia, per rectum, was a useful method, but the amount of ether necessary for removal of four-fifths of the gland was too great to be safe. He suggested that the introduction of radium into each pole of the remaining lobe, after hemithyroidectomy, might be advantageous. Frequently a patient was quite satisfied with the result of hemithyroidectomy and declined further operation.

Dr. F. HERNAMAN-JOHNSON was doubtful whether X rays, unless used in dangerous doses, produced definite diminution in the thyroid gland; yet beneficial results followed the use of X rays whenever applied. The good effects, he thought, were produced constitutionally rather than locally, and were general rather than specific. During treatment tram or 'bus journeys ought to be avoided and electrical methods should never be neglected. Proper radiological technique was as necessary as proper surgical technique. He now used X rays for their local regulating action as well as for their constitutional effect; the first could equally well be obtained by electrical treatment. In no sense were X rays an alternative or rival to surgery, for they should be used when the diagnosis was made, and in advanced cases were only useful to render the case more suitable for the surgeon. Though he agreed with almost everything that Dr. Stoney had said, he did not agree that X rays caused atrophy of the gland. It was, he thought, unjustifiable to show illustrations of telangiectasis of scarring or telangiectasis after X rays as arguments against their employment; the method was new, and these dangers had to be appreciated.

The discussion was further adjourned to March 4th at 5.30.

## SECTION OF PSYCHIATRY.

### MENTAL TESTS.

A MEETING of this section of the Royal Society of Medicine was held on Feb. 8th. In the absence of Dr. Farquhar Buzzard, the President, Dr. PERCY SMITH was in the chair.

Dr. W. A. POTTS read a paper on Mental Tests, which is published in full in the present issue of THE LANCET.

*Discussion.*

In opening the discussion, Dr. PERCY SMITH said that mental tests were very important, and that he had

found the Binet-Simon series useful in dealing with children.

Dr. W. H. COUPLAND said that the great development of tests in America was important, even if the Americans were somewhat too enthusiastic in regard to them. In time the various tests would be more accurately evaluated. He agreed that the question of mental defect must not depend only on passing tests.

Dr. F. C. SHRUBSALL said that the subject was so vast that it was very difficult to criticise a paper dealing with it. The first point that occurred to him was whether 16 was the right age to take as the maximum limit of intelligence in connexion with the intelligence quotient; he rather thought it ought to be 13. If the mental age was below seven there was no chance of the defective doing much good. He did not think that moral tests were any use for moral imbeciles, because they always had satisfactory ideas in regard to what was right and wrong when anyone else was concerned. The unsatisfactory thing about them was their attitude to their own bad conduct. As regards the various series of mental tests, he could not agree that the Terman Revision was the best. He preferred the Binet-Simon, and was not sure that he did not like best the old Binet tests of 1908, because there was no reading test in them. The Terman Revision really dealt with a higher type than could be dealt with under the Acts dealing with defectives. Much depended on environment, and children of a better social position came out better in such tests. His opinion was that if defectives were not under the age of 9, according to the Binet scale, and if they could perform Healy's construction puzzles A and B, then they would manage quite well in the ordinary world. The paper had made very little reference to the Porteous maze tests, which he had found very useful. In tests such as the puzzle box or the wire test, the important point was not whether the person being examined could do the test himself straight off, but whether he could follow the steps when pointed out and done before him, and then be able to do it himself afterwards. He considered it important to test defectives along any special line of ability they might have.

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## SECTION OF OPHTHALMOLOGY.

### EXHIBITION OF CASES AND SPECIMENS.

A MEETING of this section of the Royal Society of Medicine was held on Feb. 11th, Dr. JAMES TAYLOR, the President, occupying the chair.

*Commotio Retinæ with Extreme Œdema.*

Mr. F. A. WILLIAMSON showed a boy, aged 15 years, who, six days previously, had received a blow in the eye from a suspended rope, immediately followed by loss of sight in that eye. He was first seen two days after the accident, and the œdema had since decreased a good deal. The macula was of a reddish-brown colour, and there were two horizontal folds in the retina. He raised the question as to whether the concussion alone could account for all the œdema present. When the eye became more quiet, some of the obscure features might be cleared up.—Mr. J. B. LAWFORD said that but for the definite time-association of the injury and the œdema he would have suspected that the concurrence of the two conditions was mere coincidence. If there had been rupture of any important vessel, the hæmorrhage would have been evident. The folding of the retina was very striking.—Mr. LESLIE PATON said that when he first saw the case it presented almost the typical picture of central embolism of the retina. It was still likely there might be blockage of a vessel, the result of the concussion, though he had never seen so much œdema as a result of simple commotio. There might be a tearing of a nerve which affected a vessel, and the hæmorrhage had not come forward.—Dr. G. MACKAY referred to a case which followed a blow from a tennis-ball, and agreed with Mr. Paton's suggestion on the present case.

*Artificial Eyes and Lids Attached to Spectacle-Frames.*

Mr. M. W. B. OLIVER and Mr. JACKSON, attached to the Sidcup Hospital for Deformities, gave a remarkable demonstration of facial improvement brought about by their imitation of the appearance of the normal eye on the spectacle-frame of those who during the war had received wounds of the orbit resulting in evisceration. They were highly commended by all the speakers.

*Corneal Loop.—Scotometer.*

Mr. BASIL T. LANG showed an ingenious corneal loop for removing, unaided, a foreign body from the cornea. At Mr. Holmes Spicer's suggestion he had added a transilluminator device.

Mr. LANG also demonstrated his Scotometer, for which ordinary unprepared paper could be used, and the observer could watch the patient the whole time. He reminded members of the important observations which could be made with the scotometer.

Mr. LANG read a paper on the subject of

*Scotometry.*

He said that in scotometry one was concerned with more or less blind areas surrounded by more or less healthy seeing retina, and was usually applied to areas within 40° of the fixation point. It only differed from perimetry in involving a more detailed examination. Two types of scotomata were recognised: absolute and relative, the latter when an area of the retina, while able to appreciate brightly lighted white objects, was unappreciative of certain colours or gray.

Among the points to be considered in determining the size of a scotoma were: illumination, size of the object, colour of the object, colour of the background, distance of the object, scale and size of the chart, and method of making the observations. If quite a small object were brilliantly illuminated, it might be visible over an area in which a less bright, but much larger object, could not be seen. In arriving at scotomata, therefore, the light used should not be too brilliant, and direct bright sunlight should be avoided, especially as natural light varied in intensity and colour with season. No standard of artificial illumination had yet been agreed upon, but that from a single carbon filament lamp was quite suitable for this purpose. The size of the object should be measured in terms of the angle it subtends, not by the length of the edge. If using a small object, the patient should be in the best position to see it, and if presbyopic, he should be wearing his correction. Green was less easily seen than red, red than blue, and blue than white. There should be a marked contrast between the colour of the object and the background, and the latter should not reflect light. The question of the distance at which the observations should be made was a controversial one, but if working very close to the patient it was difficult to move the object sufficiently slowly to give the patient time to form and convey his impressions. Quite accurate observations could be made at one-third of a metre distance. The scale and size of the chart were matters of personal convenience. There were many methods, and he laid it down that a good method should be easy to employ, should give accurate results, should enable a permanent record to be made easily, and should enable the observer to watch the patient during the whole examination to counteract eye wandering. He proceeded to describe and demonstrate his scotometer and to discuss the features of other makes. Possibly a patient with high hypermetropia might be the subject of increased intracranial pressure, and then arose the question whether the swelling of the disc was physiological or pathological. It was probably the former if the disc when determined with a dull green was no larger than with a brilliant white light. In some cases of tobacco amblyopia and of retrobulbar neuritis scotomata for green and red, or for green only, might be found, but the chief purpose of scotometry was to determine an increase of the blind spot in suspected glaucoma.

Mr. BISHOP HARMAN contended that it was an advantage to be unconscious of the progress of delineating the scotoma until it was completed, as the mind might otherwise be influenced by what was expected. Every effort should be made to exclude the personal equation, and that had been his aim in his own scotometer, which did also enable the observer to watch the patient.—Dr. A. H. H. SINCLAIR (Edinburgh) referred to the work of previous observers in this field especially Bjerrum, Runner, Walker (of Boston), Traquair (Edinburgh), and himself. All those observers realised the importance of using a very small test object. He thought the screen should be at a sufficient

distance so to enlarge the scotoma that its details could be studied. The scotoma of interest in early diagnosis was the relative one.

*Late Infection after Sclerostomy.*

Mr. T. HARRISON BUTLER (Leamington) read a paper with this title. It opened with a historical sketch of the work of von Graefe, Grosz, La Grange (who discovered the first method which could be relied on to produce a filtering scar), Herbert, Evans and Allport, Holth, Freeland Fergus, and Elliot. Mr. Butler said the conclusion was that the modern fistulising operations were more efficient in reducing hypertension than was iridectomy, but that the danger of late infection was a serious offset which had deterred many from performing sclerostomy, driving them to older but less efficient procedures. He had himself treated 11 eyes, the subjects of such late infection, and some of the patients had had a second or a third attack. These tragedies caused him to abandon sclerostomy and revert to iridectomy; but the results of a series of cases were so futile that he reverted to trephining, and a comparison of his later results so completely vindicated the fistulising method that he did not propose again to perform iridectomy for glaucoma simplex. His statistics gave 45 per cent. of successful iridectomies, as against 75 per cent. of good results from sclerostomy.

During 1918–19 he trephined 40 eyes for glaucoma simplex, and until recently all had been successful. Two had reappeared with raised tension and had been trephined with success. On reviewing his cases over the last five years, he found all the late infections had followed the trephine operation and Holth's punch operation. He discussed a number of informing cases in detail. It was obvious, he said, that the scar left by the punch was far more vulnerable than was the trephine scar; probably there was more bruising. A button-hole was a serious menace, but in some cases the conjunctiva was so friable that it might tear. The Holth operation belonged to the past. He thought hypertony was one of the conditions favouring late infection. In many of his unfavourable cases alcohol had been a factor. When he knew *Staphylococcus albus* was obtainable from the conjunctival sac he refused to operate. In order to avoid late infection, he thought the operation should not be regarded as an easy one; a perfect technique should be cultivated, and, consistent with good work, the operation should be done as quickly as possible; the flap should include all the tissues, and should not be bruised. Any local septic focus should be searched for. As an antiseptic lotion for use all the time, he advised a 1 in 10,000 solution of oxy-cyanide of mercury, used nightly in an eye-bath.

Mr. S. H. BROWNING asked whether the eyes were examined bacteriologically before operation, and, if so, by what method. If by Elschnig's method, that did not receive general approval. Pneumococcal infections in the eye were quite common. The presence of pus was apt to be deceptive, and should not be the only thing looked for, as eyes apparently healthy were found to contain pneumococci, streptococci, and even *Staphylococcus aureus*, in numbers to warrant postponement of the operation.—Mr. D. LEIGHTON DAVIES (Newport) emphasised the importance of a sufficiently thick flap; a thin one might lead to late infection.—Mr. M. S. MAYOU agreed that a thick flap was an important protection against infection. Another protection was the amount of fluid leaking from the anterior chamber through the trephine hole. He had had only one case of late infection after trephining; he had seen two others, and in all recovery was good.

Mr. BUTLER, in reply, agreed as to the adoption of good methods of ascertaining whether the conjunctival sac was sterile, but for practical purposes he used a 48-hour culture on agar.

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NORTH-WESTERN TUBERCULOSIS SOCIETY.—A special meeting of this society was held in Manchester on Feb. 24th to discuss a proposal to make the society a constituent part of the Tuberculosis Group within the Society of Medical Officers of Health. A majority of those present were in favour of maintaining independence for the discussion of purely clinical matters, leaving any who wished to do so to join the new group. Decision was deferred until after a meeting with a deputation from the M.O.H. Society to be held in Liverpool on April 7th.

## ROYAL ACADEMY OF MEDICINE IN IRELAND.

### SECTION OF STATE MEDICINE.

AT a meeting of this section on Jan. 14th Dr. R. J. ROWLETTE, the President, opened a discussion on

*Medical Reform in Ireland.*

He gave an abstract of a recent report of the Irish Public Health Council and expressed the opinion that it gave the foundation for a thorough and statesmanlike scheme of reform. Unfortunately the Government had declined to legislate on it, and the Chief Secretary had given contradictory reasons for this refusal. The scheme might, however, form the basis of legislative action when a normal system of Government would again exist in Ireland. It was a hopeful sign that those who represented the political opinions of the majority of the Irish people had serious and sound views on health matters.

Sir JOHN MOORE, President of the Academy, read a paper on

*Existing Hindrances to Public Health Work in Ireland,*

in which he drew attention to the fact that the Infectious Disease (Notification) Act of 1889 provided that the local authority should pay to the medical practitioner a fee of 2*s.* 6*d.* for each certificate sent by him in accordance with the Act if the case occurred in his private practice. This provision was endorsed and extended by the Infectious Diseases (Prevention) Act of 1890. The Tuberculosis Prevention (Ireland) Act of 1908 provided that a fee of 1*s.* should be paid to the practitioner for certificates in the case of persons treated in public institutions, and 2*s.* 6*d.* if the case occurred elsewhere. The Local Government Emergency Act of 1916 *reduced* the fee payable for notification to 1*s.* in all cases. With regard to the sanatorium treatment of tuberculosis, he referred to the extraordinary fact that an impasse between the Local Government Board and the local authorities should be allowed to cause serious risk to public health by interfering with and interrupting the machinery provided under Statute for dealing with tuberculosis. Lastly, he pointed out that the recommendations and proposals of the Irish Public Health Council, a statutory body, had been for the time being stultified by the decision of the Government that schemes involving expenditure and not yet in operation were to remain in abeyance.

Mr. T. A. BURKE congratulated Dr. Rowlette and Sir John Moore on their very radical and fearless treatment regarding the backwardness and existing obstacles generally of public health administration in Ireland. It was very hopeful to see medical men of the political views and professional standing of Sir John Moore and Dr. Rowlette putting Irish public health before every consideration. It was gratifying and hopeful to see that such pioneers of public health in this country were so unmistakable in attaching responsibility to the British Government for the threatened (actual in some places) suspension of the health services in Ireland. The present deplorable condition of public health in Ireland was for the most part due to the Government withholding grants which heretofore were given towards public health administration, but now were diverted to meet the awards for malicious injuries.

Dr. T. G. MOORHEAD said that he had been lately studying the financial position of the voluntary hospitals, and that he was of the opinion that the only hope for the future lay in some form of State subsidy or grant. He hoped that the voluntary basis would always be maintained. He saw little prospect of a sufficient increase in voluntary subscriptions to meet in any way the present difficulties. For the last year or so most of the hospitals had succeeded in getting a larger percentage of the patients to pay than heretofore, and in the future, undoubtedly, considerable sums would be obtained from the patients, but there would still remain a considerable number of people in the country who would be quite unable to pay their way when ill,

and he hoped that the hospitals would never shut their doors to this class. When the combined sums of voluntary subscriptions, pay from patients, and municipal subscriptions were added together there would still remain a deficit, and this deficit he felt must be made good by the State. Even if this were done it was not necessary to have State control. The municipalities that subscribed to the hospitals sent representatives to the hospital boards. These representatives were, as a rule, most welcome and were most useful members. Similar representatives of the State would, he felt sure, add strength in every way to the hospital boards in the future.

Sir WILLIAM THOMPSON, Registrar-General, said as a member of the Irish Public Health Council he did not think even the profession fully realised the amount of invaluable work done for public health by Sir John Moore, Dr. Rowlette, and Dr. Alice Barry, who were selected by the Irish medical profession to represent their interests on the Irish Public Health Council. As might be expected, such representatives of the profession did not confine their efforts to protecting and promoting in any narrow sense the mere worldly interests of the profession; some of the best features of the report of the Irish Public Health Council were due to the incorporation of the suggestions of the three medical representatives whose names he had just mentioned.

Dr. H. T. BEWLEY, Dr. W. M. CROFTON, Dr. H. M. EUSTACE, Dr. G. NESBITT, Mr. E. P. MCLOUGHLIN, and Dr. T. HENNESSY also spoke.

## SOCIETY OF SUPERINTENDENTS OF TUBERCULOSIS INSTITUTIONS.

A MEETING of this society was held at 122, Harley-street, on Feb. 14th, Dr. JANE WALKER, the President, being in the chair, when the office-bearers for 1921 were elected as follows:—President: Dr. Jane Walker. Secretary and Treasurer: Dr. P. W. Edwards, Bramcote Sanatorium, Nuneaton. Executive Committee: Dr. H. O. Blanford, Dr. Esther Carling, Sir Henry Gauvain, Dr. Marcus Paterson, Dr. S. Vere Pearson, Dr. Niven Robertson, Dr. James Watt, and Dr. R. C. Wingfield.

Dr. JAMES WATT opened a discussion on

*A Scheme of Sickness Insurance for Ex-sanatorium Patients.*

The need of after-care was, he said, well recognised, but it was hopeless at present to expect the State to subsidise the civilian ex-patient. The scheme of insurance outlined took account of the great liability to relapse, but applied only to a limited class—those whose working capacity was quite, or almost completely, restored by treatment. It must be purely voluntary, should impose no extra burden on the employer, and be independent of, and a supplement to, National Health Insurance. It could be best applied to a group of tuberculous persons employed in an institution or in a business, or even possibly to a group of persons scattered through many businesses, in which case the after-care committee might administer the fund. The main idea was that a group of tuberculous persons employed by an institution or in a business should form themselves into a benefit club, managed jointly by themselves and the employer, to the funds of which the members would contribute by weekly deductions from wages when in health, and from which they would draw during temporary breakdown of health sufficient benefit to maintain themselves and their dependents. Various safeguards to keep the fund solvent and to prevent disputes were described, and it was suggested that a premium of not more than 10 per cent. of wages would suffice to cover all sickness due to tuberculosis where reasonably suitable cases were selected. A large number of ex-sanatorium patients would willingly join such an insurance scheme, since it would considerably increase their employability and diminish the risks of a further breakdown in health.

Dr. H. A. ELLIS compared the scheme with that for insuring Post Office employees. It would succeed only where good cases were picked. If a man's relapse was taken early it cost only a few pounds to put him on his feet again, and if he survived two years without relapse he was quite a good life. The keynote in employing ex-sanatorium patients was to put them on repetition work.

Dr. F. R. WALTERS thought the plan might succeed for a combination of institutions or businesses. The period during which benefit was paid would have to be limited, because where a tuberculous person broke down it was for very long periods.

The discussion was continued by the PRESIDENT, Dr. G. HEATHCOTE, Dr. PATERSON, Dr. BLANFORD, Dr. CARLING, Dr. W. GOODCHILD, Dr. A. C. TA'BOIS, Dr. NOEL BARDSWELL, and Dr. W. T. GORDON PUGH. A committee was finally appointed to investigate the sickness-rate in institutions employing tuberculous staff, and to formulate recommendations.

The report of the committee on

*Standards of Staff (Medical and Nursing)*

in sanatoriums and tuberculosis hospitals was submitted and adopted. The committee was requested to report further on the modifications necessary in the case of the staff of small institutions and of hospitals for non-pulmonary forms of tuberculosis, and on the standards of domestic and clerical staffs for the different types of institution. The report adopted recommended that for a sanatorium or hospital for advanced cases there be one medical officer, including the superintendent, for every 75 beds where the dispensing and the bacteriological work are not done by the medical staff, and one to 70 where they are. The standard laid down for nursing staff, including the matron, is one for every eight beds in a sanatorium, and one for every five beds in a hospital, on the basis of a 56-hour working week. The best nursing unit under one sister was 50 beds in a sanatorium and 40 beds in a hospital.

Consideration was resumed of the report of the committee on the

*Coördination of Statistics.*

The main part, dealing with the classification of cases of pulmonary tuberculosis had been referred back to the committee.[1] It was decided to adopt the Ministry of Health's proposed classification of immediate results of treatment—namely, arrested (where quiescent for at least two years), quiescent (including absence of T.B. from sputum), much improved, no

[1] This report was presented by Dr. Niven Robertson at a meeting of the society held on Dec. 13th. It was urged that uniform methods should be agreed upon for classifying cases of pulmonary tuberculosis and for describing the immediate and the after-results of treatment. Classification should be based on the four main factors influencing prognosis—namely, anatomical extent of lesion, type of lesion, systemic effect, and presence or absence of tubercle bacilli in sputum. The upper and middle lobes of the right lung should be regarded as one lobe, which would then be comparable in size with the other three lobes. Extent of disease in the lung, along with tuberculous lesions of other organs, should be divided into four groups, while four types of lesion were proposed depending on presence of infiltration, consolidation, excavation, and fibrosis. Systemic effect was divided into three grades depending on the degree of the main symptoms. Finally cases were to be further sorted according as tubercle bacilli had or had not been found in the sputum. This method of classification would mean a large number of groups, but would provide an accurate and scientific sorting of all cases of pulmonary tuberculosis where large numbers were being dealt with. For small numbers it was preferable to use a simpler method, dividing cases into early, medium, and advanced. On the motion of Dr. James Watt this report was referred back to the committee with the instruction to work out a system of classification which should fit into that proposed by the Ministry of Health, and which should be further subdivided in a way similar to, but improving upon, that of the American Sanatorium Association. The Ministry, he said, were putting forward a classification, which, after a primary sorting according to sex and presence or absence of tubercle bacilli, divided the T.B.-positive cases into three groups, depending mainly on the grade of constitutional disturbance, thus separating off on the one hand the undoubted sanatorium cases, and on the other the undoubted hospital cases from a large heterogeneous middle group. For institution purposes this middle group, and possibly also the others, would require subdivision. While the degree of systemic effect must be taken into account in classification, the primary factor should be the extent and character of the tuberculous lesion. The method of the American Sanatorium Association divided these two main factors each into three classes, giving nine groups in all, a number which was convenient for clinical as distinct from public health purposes, and which could probably be made to fit into the Ministry's classification. The committee was also asked to give consideration to the classification proposed by the Inter-departmental Committee.

material improvement. As to after-results, these should be described thus: fit for full work (being the person's ordinary occupation), fit for light or partial work, unfit for any work, died, lost sight of. It was agreed to postpone the question of the symbolic representation of physical signs, and to make no recommendation regarding the form of case records.

The meeting adopted the report of the committee on the

*Training of Nurses,*

which advises a two years' training in a tuberculosis institution, followed by an examination conducted by an independent examiner and to the satisfaction of the College of Nursing. Nurses should be encouraged to proceed to general training, from which a remission of six months in a three years' training should be allowed to those passing the examination.

## LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.

A MEETING was held on Feb. 15th at the Elizabeth Garrett Anderson Hospital, Mrs. E. FLEMMING, M.D., in the chair, when Dr. EVA HANDLEY-READ read a paper on

*The Influence of Diet on Dentition*

(1) on teeth during the pre-natal period, (2) on dental caries, (3) on pyorrhœa alveolaris.

The speaker emphasised the importance of accessory food factors as absolutely essential to growth, and of the anti-rachitic fat-soluble A vitamine as a necessity in diet if the hardest tissue of the body and the one requiring the best nourishment—i.e., the enamel of the teeth—is to develop properly. Dr. Handley-Read said that the temporary teeth are fully formed in the jaws before birth. Calcification begins in the sixteenth week, and continues throughout the existence of the teeth; hence it is evident that the mother's mode of living during pregnancy and lactation must influence the teeth of the child. Even at the worst war period the diet of the poorest working women of this country had just sufficient essential vitamines to produce bone and tooth tissue fairly well calcified, and observations at baby clinics, &c., showed that the teeth of all babies erupt fully formed with apparently good enamel, but if the diet is poor in the antirachitic vitamine the enamel is found carious within a few months. Dr. Harriette Chick, Mrs. Mary Mellanby, and others had done much important research work on the accessory food factors. It had been shown that absence of fat-soluble A influences the development of teeth and jaw in puppies, causing (1) poor growth of bone and alveolar process, the tissue being osteoid; (2) irregularity of lower incisors; (3) delayed eruption and shedding; (4) delay in calcification, poor enamel and dentine, and lessened resistance to diseases such as distemper and broncho-pneumonia. Pregnant and nursing mothers should thus have a liberal supply of fat-soluble A in the diet as well as the other vitamines.

Dr. Handley-Read referred to the work of Dr. Sims Wallace, Sir F. Colyer, and Dr. J. Wheatley on the importance of stone-ground flour in diet owing to its anti-neuritic vitamine, to cellulose content, and to its need of attrition. Vigorous mastication stimulates the flow of saliva essential for proper cleansing of the mouth and for the neutralisation of acids. Speaking of the infant's diet after weaning, she said that the transition from milk to solid food should not be via pap food as this is bolted without proper mastication or insalivation. By 1½ years of age, if dentition is normal, a child should be able to masticate an apple, while from 2–5 years a normal child should be capable of masticating any hard food. The County Council classes in their syllabus advised a diet which was almost entirely confined to pap food and yet insisted on the importance of efficient mastication. It was interesting to note that between 1919 and 1920, according to Dr. Wheatley's report from Shropshire, children of 5 years of age showed on an average 1·9 decayed teeth per child, as against 6·4 per child between 1910 and 1914. This seemed to be explained largely by the restriction in the purchase of carbohydrates, and by the fact that new bread was prohibited and crusts of coarse bread had to be eaten. In poor districts ½*d.* worth of raw carrot (a vegetable particularly rich in vitamines) largely replaced the pre-war pennyworth of sweets.

Pyorrhœa alveolaris was now rampant all over the world among white and coloured races, and was also common in animals kept in captivity. It seemed probable that excessive carbohydrate and deficient antiscorbutic diet largely accounted for this. In true scurvy acute periodontitis was a marked symptom and the teeth dropped out if anti-scorbutic treatment was delayed. Probably modern diet contained sufficient antiscorbutics to prevent actual acute scurvy but not to prevent a chronic periodontitis. Pyorrhœa was present because in the mouth there was damaged tissue in the shape of inflamed gums, due to pap foods; bacteria were always present and with a diet deficient in antiscorbutic vitamines pyorrhœa supervened. That many vegetarians suffered from pyorrhœa was probably explained by the fact that they are mostly large consumers of carbohydrates and that their vegetables or fruit are rarely eaten raw. In Asiatic races caries is rare, but the teeth drop out at middle age in those parts of the country where the antiscorbutic factor is deficient in the diet. Points which lead to the conclusion that chronic general periodontitis was really connected with diet were its universality, its development among wild animals brought into captivity, the fact that no specific bacteria had been isolated, and the further fact that some persons who might be considered food cranks had effected their own cure.

Dr. Handley-Read then described several cases in which she had found acute pyorrhœa which had completely cleared up on a diet of raw vegetables, salads and fruit, eggs, a little milk, and very limited carbohydrates. An "intensive vitamine" diet such as this would produce astonishingly good results. While firmly believing in the efficacy of such treatment for chronic pyorrhœa, local treatment by drugs, vaccines, and ionisation should not be neglected.

In the discussion of the paper Dr. O. LEWIN, Dr. D. HARE, Dr. E. HARDING, Mrs. FLEMMING, and others took part.

## SOCIÉTÉ DE THÉRAPEUTIQUE DE PARIS.

AT a recent meeting of this society Dr. G. CAUSSADE and Dr. P. CHARPY communicated a paper on the

*Pharmacology, Posology, and Clinical Aspects of Salicylate of Soda.*

They remarked that the toxicity of this drug had been much disputed. While fatal cases had been reported after small doses, in other instances only transient disturbances had been caused by much stronger doses. Children above the age of 7 would very well take the doses ordered for adults; on the other hand, above 30 the drug was usually contra-indicated because, in the first place, acute articular rheumatism was rare after that age; and secondly, because the liver and kidneys were less likely to be healthy then than in younger persons. Women showed a special susceptibility to the drug, and it should not be given to alcoholic subjects or to persons with a nervous taint. Apart from individual susceptibility, the impurity of the product employed should be considered. Commercial salicylate of soda contained free salicylic acid, isomeric acids, isophthalic and creosotic acids. The last two were toxic substances, and every salicylate should be rejected which was not crystalline, and which was violet or grey in colour and acid in reaction. Salicylate of soda was mainly eliminated in the urine in the form of salicyl-uric acid, a combination of salicylic acid and glycocoll. Its elimination should be hastened by putting all patients taking the drug on a vegetarian diet, since by that means a more abundant formation of glycocoll was effected, the suppression of which might give rise to serious symptoms. The most frequent, if not the most serious, symptom of salicylate intoxication was delirium. It appeared fairly soon after the commencement of treatment. Its onset might be sudden, occurring at the same time as the pains in the joints disappeared. When it developed less suddenly it was characterised by talkativeness, restlessness, and a freedom of movements in striking contrast with the functional impotence of the previous days.

Dr. GASTON DURAND read a paper on

*Migraine and Auto-hæmotherapy,*

in which he reported the case of a woman who at the age of 50 began to suffer from attacks of migraine accompanied by urticaria, which became worse in the course of six months until she had only a few days' respite. After other methods had failed Durand decided to make use of auto-hæmotherapy which he had found successful in several cases of urticaria. A subcutaneous injection of 10 c.cm. of the patient's blood was given during an attack, and four days later at the onset of an attack, with the result that the patient for the first time for three months was a whole fortnight without having another attack. The next attack was mild and the subsequent ones milder still, 2 c.cm. of the patient's blood being used on each occasion. During the following months only abortive attacks occurred, and were easily cured by injections of 2 c.cm. of the patient's blood.

Dr. G. PETGES (Bordeaux), in a paper on

*The Treatment of Epidemic Hiccough by Aspirin,*

stated that in several cases he had found that aspirin in doses of 1 g. had a very rapid and successful action on the

hiccough, and for that reason he was inclined to regard the condition, not as a manifestation of influenza, as had been done by Logre and Heuyer, nor of epidemic encephalitis, as maintained by Sicard and Paraf and Achard and Rovillard, but as a rheumatoid or rheumatismal manifestation.

Dr. G. LEVEN, in his paper on

*Symptomatic Aerophagia*,

stated that although the diagnosis of aerophagia was an easy matter, the practitioner should realise that the most typical aerophagia might sometimes accompany an organic lesion, and that the most careful and complete treatment of aerophagia might fail because the symptoms masked a more serious disease. He recorded three typical cases of aerophagia which were associated with descending goitre, stricture of the œsophagus, and cardiac hypertrophy respectively, these three diseases being to a certain extent responsible for aggravating the aerophagia.

## DEVON AND EXETER MEDICO-CHIRURGICAL SOCIETY.

*Exhibition of Cases and Specimens.*

A MEETING was held at the Royal Devon and Exeter Hospital on Feb. 17th, Mr. A. C. ROPER being in the chair.

Mr. A. L. CANDLER showed: (*a*) X ray plate of a case of Perthes or Legg's Disease of Hip in a girl aged 17, who also gave evidence of deficiency of endocrine glands; (*b*) Myoma of Uterus weighing 10½ lb. with pregnancy of four months' duration; (*c*) three specimens of Ectopic Gestation—viz., tubal, ovarian, and secondary abdominal pregnancies.

Mr. NORMAN LOCK showed: (*a*) Two Ribs with Chondrosarcoma on the Inner Side removed successfully some months previously; (*b*) Large Stones in Kidney; (*c*) a greatly Thickened Gall-bladder containing a Gall-stone.

Dr. RANSOM PICKARD exhibited Eyes removed for Sarcoma of Choroid and Sarcoma of the Ciliary Region respectively.

Dr. G. P. HAWKER showed a patient with Embolism of Retinal Artery.

Dr. R. V. SOLLY showed: microscopic slides of (1) Cattle and other Ringworms; (2) Basal-celled Carcinoma; (3) Cerebral Tumour in Brain secondary to Sarcoma of Eye in a case where no other secondary growths could be found elsewhere at the autopsy.

Dr. SOLLY also showed for Mr. B. DYBALL: (1) Myeloma of Fibula; (2) Hypernephroma.

Dr. F. A. ROPER showed X ray photographs of: (1) Osteitis Deformans with commencing Sarcoma; (2) Hernia of Stomach into Left Side of Thorax following G.S.W.

## NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

*Exhibition of Cases and Specimens.*

A MEETING was held at Liverpool on Feb. 18th, Mr. CARLTON OLDFIELD, the President, in the chair.

Dr. J. E. GEMMELL and Dr. LEYLAND ROBINSON showed three specimens of Uterine Fibroids, complicated in two cases by a coexisting carcinoma of the body of the uterus. In the third specimen a left hæmatosalpinx was present and was evidently produced by torsion, as there was no evidence of ectopic pregnancy.

Dr. J. H. WILLETT and Dr. R. A. HENDRY (Liverpool) showed a specimen of Hydatidiform Mole with a Well-developed Four and a Half Months' Fœtus and Placenta. They were of opinion that this was a case of twin pregnancy in which one ovum had undergone vesicular degeneration.

Dr. W. W. KING (Sheffield) described a case where acute symptoms arose during pregnancy from the rupture of a vein on the surface of a subperitoneal myoma of the uterus. At the operation a large quantity of free blood was found in the peritoneal cavity. The tumour was removed by myomectomy and the pregnancy left undisturbed.

A discussion took place on Dr. F. H. Lacey's paper on Induction of Labour for Moderate Contraction of the Pelvis, read at the last meeting of the society and reported in THE LANCET, Feb. 12th. The opinion of the majority of the speakers was that, although excellent results could, no doubt, be obtained in hospital, as Dr. Lacey's figures showed, the method was extremely tedious in private practice and apt to cause a good deal of anxiety to the patient and her attendant. Cæsarean section should be the operation of choice where there was any reason to fear that delivery of a healthy full-term child by the natural passages was going to be impossible.

# Reviews and Notices of Books.

### TRUTH ABOUT VENEREAL DISEASE.

By MARIE CARMICHAEL STOPES, D.Sc., Ph.D. London: G. P. Putnam's Sons, Ltd. 1921. Pp. 52. 1*s*. 6*d*.

TRUTH, unfortunately, is a relative term. In regard to venereal diseases it has suffered very greatly at the hands of its most eager disciples. Mrs. Stopes has visited both warring camps—she acknowledges indebtedness for much information from Mrs. A. C. Gotto and also from Mr. H. Wansey Bayly—and has discovered as common to both the National Council for Combating Venereal Diseases and the Society for the Prevention of Venereal Disease a body of ascertainable facts, some simple deductions from these facts, and campaigning principles based on these deductions. These are set forth with great literary skill and persuasiveness in a little pamphlet of 50 pages, which, she states, was written at the request or with the approval of Professor W. M. Bayliss, Sir James Crichton-Browne, and others. The book is divided into nine sections, of which the headings are: Germs Generate Disease; The Deadliest Germs; Pure and Happy Marriage is the Only True Safeguard of the Race; The Characteristics of the Deadliest of all Germs; Contact is the Source of Infection; Disinfectants do Disinfect; Disinfectants Only Disinfect; Disinfectants Disinfect, They do not Cure; Humanity can be Entirely Freed from this Terror. While the first eight sections are instructive it is to the ninth that the informed reader, sick of controversy, will naturally turn. Mrs. Stopes holds that if we only dealt with the subject energetically enough we should stamp out the diseases in this country more quickly and easily than plague, small-pox, or leprosy. To this end she is assured of the necessity of a complete survey of everyone in the country, although it may be many years before the public demands it. Sex diseases, she thinks, would never have saddled themselves on humanity had not all sex knowledge been befouled by prudery. "No one would willingly sleep with a case of small-pox or the plague." She believes that a new and overwhelming spiritual power is even now entering upon the earth, but that immediately to stem the onrush of contamination some new factor of health and cleanliness must be brought into play during the hiatus, until the young generation grows to maturity. The concluding paragraph of the book runs:

> It is the duty of the Churches to win the people by moral precepts and teaching to a right view of life and pure living; it is the duty of the doctor to see that people are decently clean; it is the duty of the reformer to see that people *know* facts essential to their life and progress. In this respect the moralist and the doctor have essentially the same message to teach.

We believe that the chief merit of Dr. Stopes's book lies in the fact that after reading it every right-minded citizen will enlist according to his strength and ability in the campaign against venereal diseases, and will be unlikely to embarrass the high command by violent adhesion to a particular battalion.

### LECTURES ON DISEASES OF CHILDREN.

Fourth edition. By ROBERT HUTCHISON, M.D., F.R.C.P. London: Edward Arnold. 1920. Illustrated. Pp. 416. 21*s*.

AN author who publishes in book form a series of lectures prescribes for himself definite limitations, by which the writer of a text-book is unfettered. Each lecture must be a composite whole, even though the teaching be in accordance with consecutive tenets or theories, and the subject-matter of its title must stand out in relief. Though necessarily hampered by these restrictions, Dr. Hutchison has contrived to embody in his lectures a great deal of information of first-rate importance concerning the diseases of children, and it is not to be wondered at that a fourth edition has already been called for. The author has rewritten the lectures

dealing with infant feeding, tuberculosis, and congenital syphilis, added a new lecture on fever of obscure origin, making 31 lectures all told; and he has revised the remainder.

We could wish that the question of breast-feeding had been less summarily dealt with. Its importance is recognised, but, we think, scarcely emphasised enough, nor are its advantages forcibly expounded to the uninitiated. Its many pitfalls, too, receive scant notice, and though various devices are advocated by which premature weaning may be avoided, the reader is given no guiding principle by which to select the treatment. Due regard is paid to weight as an evidence of the infant's progress or the reverse, but we think that the other criteria are rejected somewhat lightly, no distinction being made between such doubtful evidence as is procurable from a history, and objective signs of malnutrition other than those afforded by the scales. In the matter of bottle-feeding the author makes many recommendations with which divers authorities would disagree; this is only to be expected in so contentious a field. Thus, he disapproves of dilution of milk by more than one-half, yet delays the giving of whole milk until the ninth month. Again, though he endorses the modern practice of feeding infants less frequently, by advising three-hourly feeds from the beginning, he postpones four-hourly feeds until the sixth month. His dictum that "a good mixed milk from a trustworthy dairy is all you need" is, no doubt, excellent; but unfortunately the good mixed milk and the trustworthy dairy are hard to come by, except in favoured and limited areas. With the milk-supply in its present state Grade A certified milk deserves mention, for therein lies the only safe alternative to dried milk in many districts.

A new lecture on fever of obscure origin is one of great practical value, and a welcome addition to the book. In it are discussed the several conditions which may cause in children fever the origin of which is difficult to find or remains undetermined, but the occurrence of which is frequently a matter of great concern to the parents and practitioner alike.

Briefly, the book is a sound, lucid, and attractive exposition of the more important parts of pediatrics, and has this notable virtue—it is entirely free from fads.

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PRACTICAL PREVENTIVE MEDICINE.

By MARK F. BOYD, M.D., M.S., C.P.H. London and Philadelphia: W. B. Saunders Company. 1920. Pp. 352. 20*s*.

AN author who aims at summarising the whole field of modern industrial medicine in just over 300 pages, many of which are devoted to illustrations, is attempting an impossible task, and Professor M. F. Boyd has hardly done justice to himself or his subject. He makes free use of the modern American plan of presenting subject matter by the method of classification; this is occasionally effective in his hands, but more often oppresses the reader with multiplicity of detail. Preventive medicine depends upon the broad principles of health, and the student who finds himself faced with a vast array of pigeon-holes, each containing, neatly docketed within, a compact list of facts, will never obtain a right sense of proportion. This book may almost be accused of being useful for examination purposes, an accusation which is no compliment to the examination system. Most text-books are uneven because authors are not contented to deal only with their own specialty, but attempt to present the specialties of others. Such books take their value from those chapters which arise from the special knowledge of the author. Perusal of the book under review has failed to disclose any subject so handled, and we find ourselves in agreement with the preface, that "no originality is claimed for the material here presented."

There are, however, readers who like to absorb knowledge in tabloid form, and to them we recommend this book, for the facts stated are correct and up to date. Professor Boyd has given lists of references at the end of each chapter which are most valuable to us, since they refer to many sources of information published in America and not known in this country; but we should have expected his American readers to desire information regarding literature published abroad. If so, they will be disappointed that only American publications are named, for public health medicine saw its birth in this country, and continental workers have contributed nourishment to the growing child.

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MADURA FOOT.

*Dos Mycetomas*. By Dr. ALEX K. YAZBEK. Published by the Faculty of Medicine and Surgery of S. Paulo. 1920. Pp. 164.

THIS monograph, which is based on a study of seven cases of "madura foot," deals with a condition unfamiliar to European practitioners. The disease is, nevertheless, of importance in its relation to actinomycosis, which is now being more frequently recognised than hitherto in this country. No condition resembling madura foot has yet been recorded in England, but there is no inherent impossibility that it may not one day be found, for Dr. Yazbek considers that he has identified the infective agent as *Discomyces bovis* in four of his seven cases. This treatise is well illustrated with photographs of microscopic preparations, cultures, and typical lesions; from the latter it is evident that the condition bears a close clinical resemblance to actinomycosis as found in other parts of the body. The treatment appears to be unsatisfactory. The infective agent is not always the same; iodide medication is sometimes ineffectual and amputation may have to be performed.

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DISEASES OF THE EAR.

Second edition. By PHILIP D. KERRISON, Aural Surgeon to the Willard Parker Hospital for Infectious Diseases. London and Philadelphia: J. B. Lippincott Company. 1921. With 332 illustrations and 2 coloured plates. Pp. 596. 35*s*.

THIS book, by reason of its size, is intended less for the medical student and general practitioner than for the student of otology, who will find it a most interesting, useful, and instructive work. The teaching is sound and practical, and the statement of controversial matters is very well balanced. The author has devoted more attention than is usual to suppurative labyrinthitis and to the cerebral complications of aural disease, and the chapters on these subjects are the best in the book. It would have been a more orderly arrangement if the caloric and rotation tests of the labyrinthine function had been described together with the examination of the hearing in the preliminary chapters, and not placed among the symptoms of suppurative labyrinthitis; for it is not only in this disease that the labyrinthine tests are of value. Similarly, Bárány's tests of cerebellar function might have been considered with the testing of the ear, instead of having a chapter to themselves. But these are minor matters, and the book may be cordially recommended to all who desire a sound and thorough knowledge of otology. The illustrations, the type, and the paper are all excellent, and there is a good index.

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PRACTICAL BAZAAR MEDICINES.

With over 200 Useful Prescriptions. By G. T. BIRDWOOD, M.A., M.D. Cantab., Lieutenant-Colonel, I.M.S. Calcutta and Simla: Thacker, Spink, and Co. 1920. Pp. 179. Rs.3/8.

THIS little book is written for the use of medical men working in Indian districts far away from chemists' shops, and points out how many maladies can be treated inexpensively and efficiently by means of drugs obtained from the bazaars. It begins with a list of bazaar medicines classified according to their actions; the bulk of the work consists of two sections, of which one deals with the sources, actions, and methods of use of the more common and useful bazaar remedies, and the other forms a bazaar medicine pharmacopœia comprising more than 200 prescriptions. The book will be found especially helpful as a reminder to medical men that many simple remedies already known to but not habitually used by them, can be obtained in the bazaars; with regard to the less-known native remedies a

difficulty arises in that prescribers, at any rate those trained in England, have no adequate means of ascertaining the genuineness and purity of such products. A few of the formulæ are open to criticism; "Pot. chlor.," named as an ingredient of Rogers's intravenous injection for cholera, is ambiguous; one would expect an ointment consisting of catechu, wax, and honey to present some difficulty to the compounder, and, on paper at least, a mixture of catechu, chalk, alum, ferrous sulphate, and gall-nut powder as a dentifrice appears rather nauseous. The book, which is interleaved with blank pages, should prove distinctly useful to those for whom it is intended.

## JOURNALS.

*The Journal of Biological Chemistry* (Vol. XIV., 1920) contains a number of useful studies on vitamines, of which the following may be specially mentioned:—

A Deficiency in Heat-treated Milks (p. 381), by A. L. Daniels and R. Loughlin.—The authors obtained no data indicating that either the fat-soluble or the water-soluble vitamine in milk is affected by heat treatment, nor is the casein apparently affected. The results of all the experiments pointed to the one conclusion that long-heated and super-heated milk owes its deficiency to the fact that in the heating process the calcium salts are rendered more or less insoluble. Rats fed on such milk make inferior growth, but normal growth-gains were made when the heated milk was supplemented with calcium phosphate properly incorporated. The application of these findings to infant nutrition is now under investigation.

A Quantitative Method for the Determination of Vitamine in Connexion with Determinations of Vitamine in Glandular and other Tissues (p. 531), by F. K. Swoboda.—The biological test of Williams for the detection of small quantities of the water-soluble B vitamine was developed and found to be of quantitative value. From the results of determinations of the vitamine-content of various organs it is evident that this specific vitamine is present in large quantities in most of the organs of internal secretion which are of developmental importance, whereas there was a very much lower concentration in other organs examined. The liver and kidneys, however, are high in vitamine-content, whereas tissues high in nuclear material—e.g., thymus and lymph glands—gave low values.

Water-Soluble B in Cabbage and Onion (p. 175), by B. K. Whipple.—The yeast-growth method (Williams) was used. Although quantitative results were not secured the following points were established. Water-soluble B in cabbage is not destroyed by boiling for 30 or 60 minutes, neither is it destroyed by boiling with acid or alkali. It is present in onions and is not destroyed by boiling. Not more than one-half the water-soluble B is lost in the cooking water from cabbage or onions boiled for 30 minutes.

The Effect of Cooking on the Water-Soluble Vitamine in Carrots and Navy Beans (p. 158), by E. W. Miller.—The yeast method used for the quantitative determination of the vitamine content of vegetables has yielded good results when averages were taken of the number of colonies. Cooking carrots at 100° C. for 30 minutes, or heating them when tightly packed in a jar for 45 minutes at 115° C. causes no reduction of vitamine. Cooking Navy beans at 120° C. for 30 minutes decreased the vitamine content 40·6 per cent.; cooking for 70 minutes in 0·5 per cent. sodium bicarbonate solutins caused a loss of 37·5 per cent. of the vitamine. A large proportion of the vitamine from 36 to 70 per cent. was present in the cooking water.

Some Effects of Water-Soluble Vitamine upon Nutrition (p. 255), by W. G. Karr.—From experimental observations the author concludes that a relation exists in the dog between the desire to partake of food and the amount of the so-called water-soluble B vitamine ingested. Brewers' and bakers' yeast, tomatoes and milk were investigated as sources of vitamine B. Quantitative data are given to show the relative potency of the various substances investigated. Brewers' yeast was much more potent than bakers' yeast. Drying at 100° C. does not appreciably lower the vitamine content of these supplements, but heating in an autoclave at 120° C. for three to four hours causes destruction.

Metabolism Studies with Diets Deficient in Water-Soluble B Vitamine (p. 277), by W. G. Karr.—The lack of the water-soluble accessory does not affect the utilisation of nitrogen or metabolism of the dog. Data are presented which show that small amounts of a *good* protein (casein or yeast) beneficially supplements proteins which are known not to be so complete (wheat gluten).

A Test for Anti-Beri-beri Vitamine and its Practical Application (p. 487), by C. Funk and H. E. Dubin.—The procedure is as follows: A yeast suspension is prepared by shaking a loopful of a 48 hours' pure culture of yeast in 100 c.cm. of Nägeli solution on a shaking machine for three hours. Measured quantities are incubated for 20 hours at 30° C. in the presence of the unknown vitamine, with control tubes containing a vitamine of measured strength. The fermentation is stopped by heating the tubes to 75° C. in a water-bath for a few minutes, the contents transferred to special centrifuge tubes, and the volume of yeast estimated after centrifugalisation for 15 minutes. The approximate vitamine activity of a number of products has been determined by this method and the activity of autolysed yeast under various conditions has been observed.

Nutritive Properties of Milk, with special reference to Reproduction in the Albino Rat (p. 157), by H. A. Mattill and R. E. Conklin.—Young rats, taken at weaning, were placed on various rations consisting primarily of cow's milk, fresh and desiccated. The rations included the addition of starch, wheat embryo, dry skim milk, butter fat, and iron citrate, but a ration containing dry milk and 1 per cent. yeast was the only one on which normal growth and successful reproduction were obtained, and the growth of rats on that ration and one containing 5 per cent. of yeast was practically normal.

Reference may also be made to a series of articles dealing with Blood and Urine Analysis.

Note on the Preservation of Specimens of Blood Intended for Blood-Sugar Determinations (p. 203), by W. Denis and H. Aldrich.—The relative rapid decrease in the sugar content of the blood, occurring even when preserved at low temperatures, can be prevented by the addition of 1 drop of commercial formalin (40 per cent. formaldehyde) to 5 c.cm. of oxalated blood. The addition of a larger amount of formalin (3 drops to 5 c.cm. blood) adds no advantage, nor apparently does it introduce any error in the determination of sugar by the Folin-Wu method (Ibid., 1920, xli., 367). By this method of preservation glycolysis in blood specimens can be prevented for as long as 96 hours at temperatures varying from 20° to 33° C.

Rapid Colorimetric Methods for the Determination of Phosphorus in Urine and Blood (p. 55), by R. D. Bell and E. A. Doisy.—The method depends on the fact that certain reducing reagents will reduce phosphomolybdic acid without affecting molybdic acid. Phosphomolybdic acid is reduced by hydroquinone, giving a blue colour, which is distinct even with as little as 0·005 mg. of phosphorus as phosphate in a volume of 100 c.cm. The method is rapid and easy of manipulation. Details are given for the determination of inorganic, organic, and total phosphorus in the urine, and inorganic and acid-soluble phosphorus in the blood. The method for inorganic phosphate appears to be more accurate and rapid than the usual uranium titration.

The Estimation of the Chlorides in Blood (p. 47), by V. C. Meyers and J. J. Short.—A method for chloride estimation in blood is described; the proteins are removed by precipitation with picric acid, and the chlorides estimated by the Volhard-Harvey method in the filtrate. The picric acid filtrate can also be used for the estimation of creatinine and sugar.

The Nature of Chlorine Combination in Urine (p. 239), by A. T. Cameron and M. S. Hollenberg.—These authors conclude that, in the absence of chlorate or similar medication, chlorine occurs in the urine as chloride only; organic chloride and chlorine oxy acids are absent.

Estimation of Phenolic Substances in Urine (p. 409), by T. F. Tisdill.—The results obtained for the total phenolic substances in urine by the ether extraction method outlined in this paper are at least 50 per cent. lower than those recorded by Folin and Denis. It is suggested that there are unidentified substances present in urine which react with the colour reagent used by Folin and his co-workers, which are responsible for the high values by the latter method. These unidentified compounds are partly present in the free state and partly formed by the action of strong minerals acids on the urine. Only a small fraction of the volatile phenols are excreted in the urine in the free state.

*British Journal of Experimental Pathology.* February, 1921. London: H. K. Lewis and Co. 7*s.* 6*d.*—The Measurement of Capillary Blood Pressure in Man, by Leonard Hill, F.R.S., and J. M. McQueen. The pressure which stops the flow through and expresses blood from the skin has generally been taken as the measure of the capillary blood pressure. It indicates actually the pressure in the small arteries plus the pressure required to deform the convex horny layer of the skin. The authors have devised a method for estimating the true pressure of the small arteries; it amounts, they find, to 10 mm. of mercury. Results obtained by Dr. Hill and his collaborators in previous investigations into capillary pressure in the brain, in transparent membranes in frogs and mice are given and discussed. They all indicate that the true capillary pressure is very low, a fact of great importance in physiological theories of lymph secretion, and bearing directly upon our conception of inflammation.—Spontaneous and Artificial Pulmonary Lesions in Guinea-pigs, Rabbits, and Mice, by H. B. Maitland, Mary L. Cowan, and H. K. Detweiler. A pulmonary lesion, which is an agonal phenomenon, is described, characterised by hæmorrhage into the alveoli and sometimes into the bronchioles, without leucocytic infiltration in the lung tissue. A second type of lesion consists in a slow proliferation of endothelial cells.—The Nature of the Effect of Blood Pigment upon the Growth of *B. influenzæ*, by P. Fildes. The author concludes that the blood pigment acts as a catalytic agent.

*Ophthalmic Literature.* Denver, Colorado: Ophthalmic Publishing Company. Published quarterly.—Up till the end of 1919 a digest of ophthalmic literature was published monthly as a supplement to the *American Journal of Ophthalmology*. The subjects of the 12 supplements were so arranged that each number dealt with certain topics, reviewing the literature in connexion therewith for the preceding year, the 12 supplements being separately paged, and forming the "Ophthalmic Year Book" for each year. In 1920 a new method of publication was adopted without any alteration in the plan of the subject matter. Instead of monthly supplements a separate number is published quarterly under the title of "Ophthalmic Literature," the four numbers forming, as before, a complete digest of the ophthalmic literature of the world for the 12 months preceding their date of publication. It continues to be issued as a supplement to the *American Journal of Ophthalmology*, and is delivered free to the subscribers to that journal. The work is excellently done by eight editors, with 28 collaborators, all but four being Americans. It forms by far the most complete digest of recent work in ophthalmology all over the world.

# THE LANCET.

*LONDON: SATURDAY, MARCH 5, 1921.*


## Records and Medical Secrecy.

THE general question of the law in its relation to medical secrecy is under the consideration of the Lord Chancellor, but Dr. ADDISON replied last week to two specific questions put to him by Colonel F. E. FREMANTLE on behalf of colleagues inside and outside the House of Commons. The first related to the possible liability of a doctor to an action for libel in respect of matter entered on an insurance record card should this be "published" to his private secretary. The Minister of Health said he was advised that in the circumstances mentioned it was in the highest degree unlikely that there would be any cause of action against the doctor unless malice on his part could be proved. It is indeed not very easy to imagine conditions which would lead to any such action being ever attempted. True, there may be technical publication of defamatory matter, but no one will know that such matter has been so published unless the doctor or his secretary chooses to give information about it. Even should the secretary be cast for melodrama and say to the patient, "My employer has entered on a card that you are suffering from a certain disease, involving disgraceful conduct on your part, and has handed the card to me for filing," the fact that the entry was true and was made in accordance with a statutory regulation would be a complete answer to any proceedings for libel or slander. If, on the other hand, a wrong entry were made designedly the medical man who suffered for so doing would deserve no sympathy. If he made an error of diagnosis, or had a lapse of memory, the absence of malice, referred to by the Minister of Health, would help him out, although privilege accorded in terms by Parliament might protect him more completely.

A second question referred to the possible obligation to produce medical history cards under subpœna in a court of law. Here Dr. ADDISON'S reply was to some extent evasive. He appears to have suggested that in any case the facts desired to be proved would have to be the subject of oral evidence. This, however, would not protect the medical man from being requested to look at his entry on a card and so to refresh his memory or correct his statement. To this extent, therefore, the enforced production of the cards in court might be the means of extracting from medical men information on confidential matters adversely affecting their patients. We need hardly say that if a medical man is called on behalf of a patient, it is his duty to say what he knows, and the question of what he has written on a card will not affect his desire to do so. It is with regard to evidence which is adverse to the patient's interest, and which, if given, will be given without the patient's authority that we are more concerned. Such evidence is an old matter of controversy, frequently disputed between the medical man summoned into the witness-box on the one side and counsel or the court on the other. The question here is to what extent will the possible production of past medical history cards operate with regard to the giving of medical evidence under order of the court by an unwilling witness. We are inclined to think that it should have little or no effect.

If a medical man gives evidence, willingly or not, he will give it truthfully and accurately, and will acknowledge where his memory is at fault. In such circumstances he, at any rate, has nothing to fear from the production of the cards. When we consider whether the patient will have anything to complain of we must remember the conditions under which adverse medical evidence may come to be given in the case of insured patients. It appears to us that, if the patient is interested in establishing the truth, the medical man who has attended him will almost inevitably be a witness on his side. If he is not going to be called on behalf of his patient, but subpœnaed against him, the doctor may be reluctant to give evidence, and has a right to express his reluctance. He can hardly desire, however, to keep silence from "ethical" reasons, if he knows that his patient, relying on his silence, is endeavouring to deceive a court of law and to defeat justice. In such a case as we have suggested can a patient rightly complain if a medical record, made at the time by his panel doctor, helps to establish the truth? We are inclined to think not, and to believe that, as a general rule, any danger from the production of cards in court, if they are made producible, will only affect an inaccurate witness or a dishonest suitor. That there may be exceptions is possible. These will be cases, however, where the medical man will protest against giving evidence, and invite the protection of the court. The ruling given will not depend upon the production of the cards under discussion.

## The Report on Biologicals.[1]

WE published last week a resume of the conclusions arrived at in the report of the strong Departmental Committee appointed by the Minister of Health to consider the effective control of therapeutic substances which cannot be tested by direct chemical means. On the analogy of "chemicals" we propose, for want of a better term, to call these substances "biologicals." We found the conclusions arrived at reasonable, and at the same time referred to the fact that they had been discredited in the daily press upon the issue of the report. The medical correspondent of the *Times* has provided a case in point. We are certain that the *Times*, like ourselves, have the dissemination of accurate information at heart, and we welcome the coöperation of the general press, which has latterly done so much to explain the medical position in public affairs to thousands who could not be expected to read scientific journals, or to accept the views expressed in such quarters; but the divergence of opinion between the medical correspondent of the *Times* and ourselves is in the matter of this report so open that we owe it to our readers to justify our views. They are prompted by intimate knowledge of the origin of the report, and of the value of the evidence upon which its recommendations have been based.

The comments by the medical correspondent of the *Times* appeared on Feb. 23rd, and show

[1] Ministry of Health. Report of Department Committee on Control of Certain Therapeutic Substances. London: His Majesty's Stationery Office. 1921. 2*d*. net.

no close acquaintance with the Report, and also no desire to consider it on its merits. No attempt is made to appreciate the position which led to the Committee's appointment, or the problems with respect to which they were asked to make recommendations. It is stated that, "so far as can be ascertained," the General Medical Council, which is the body responsible for the British Pharmacopœia, have performed their duties well, and might, if necessity exists, have their powers extended—the implication being that the further safeguards suggested by the Committee are superfluous. Now it was part of the Committee's duty to interrogate the representative (the President) of the General Medical Council, and to inquire what had been the action of the Council with regard to biologicals. The Committee were informed that the Pharmacopœia Committee of the General Medical Council had been unable to include in the Pharmacopœia precisely the important remedies of the class referred to the Committee, because they were not susceptible to such tests for activity and authenticity as were regarded necessary in the Pharmacopœia. The Pharmacopœia was obliged to prescribe such tests as could be carried out by a qualified pharmacist, by a public analyst, or by some public functionary, such as the Government Chemist. In the case of the remedies under consideration, no such tests could be prescribed, and no public provision was made for the performance of the only possible tests. Accordingly, in 1909 the President of the General Medical Council approached the Government with the suggestion of a public institution for the pharmacological standardisation of potent drugs and of serums, an action which disposes of the view that the admirable work of the Council could be extended to perform the work which they admitted to be necessary.

We cannot find any suggestion in the Report "that the sera and vaccines supplied by the great drug houses, and by such institutions as St. Mary's Hospital, will be much improved by control and inspection," while it would appear that the medical correspondent of the *Times*, in writing thus, has overlooked the cited evidence of important manufacturers. There exist in this country no standards for biologicals to which manufacturers or scientific institutions can work. The country has been fortunate in that the preparation of these substances has been for the most part in the hands of well-qualified and responsible workers, but there is nothing to prevent its falling by competition into hands of a very different kind. There is with us no restriction on importation, and no kind of guarantee that importers will have regard to the standards which British manufacturers have adopted for themselves. The case of salvarsan illustrates the anomaly of the present position very clearly. Before the war this substance was entirely obtained from Germany. It is admittedly extremely dangerous to use preparations of it which have not been tested by biological methods to ensure their freedom from toxicity. During the war an emergency control was obtained by the roundabout method of inserting into every licence for suspension of the patent rights held by German nationals a clause imposing the obligation to have every batch which was manufactured tested before issue by a proper authority. Now that war is finished this control over the British-made product will shortly come to an end, while the German product is again being freely imported without control of any kind, except what is exercised in the country of its origin. Medical opinion is clear that the situation is a dangerous one. Is it to continue because effective control necessitates legislative action? We should find such economy very like carelessness.

The Committee, in drawing up their recommendations, had several possibilities to consider. It was urged from some quarters that the simple way out was manufacture by the Government, and free distribution. The Committee, on grounds of efficiency and economy, promptly rejected this suggestion, which was indeed excluded by implication from the terms of their reference. Another possibility would have been to adopt a proposal, such as that put forward in 1909 by the General Medical Council, for the establishment of a new public institution with Government money, where the necessary standardisation could be carried out. This also is rejected in the Committee's Report. After considering the working of the different systems, whether of Government monopoly or official control—some of which already exist in other countries—the Committee decided to recommend a scheme which should enable the Government to deal with the whole matter without creating a new institution. They point to the fact that, in the clearly imperative case of salvarsan, biological control has already for some years been carried out by the scientific staff of the Medical Research Council in their National Institute for Medical Research. They suggest that the Medical Research Council should be asked to undertake the duty of preparing such other biological standards as are required; that as far as possible the application of those standards should normally be left to the individual manufacturers; and that the minimum of inspection necessary to see that the standards are faithfully and properly applied shall be carried out by the scientific workers themselves, who have the responsibility for the preparation and maintenance. The legal authority for scheduling the substances which need such control, is to be, not the Minister of Health nor any Committee appointed by him, but the already existing Committee of the Privy Council to which the Medical Research Council are already responsible for the discharge of their existing functions. The Committee were presented with a problem which asked urgently for action, and they seem to have found a way of dealing with it efficiently, at little expense to the public, and with the minimum of interruption to conscientious and efficient manufacture. The manufacturers, indeed, are strongly in favour of the scheme as giving them, as well as the public, protection from the activities of those who are inefficient or dishonest, or both.

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BRADFORD TECHNICAL COLLEGE: COURSE IN PUBLIC HEALTH.—A course designed to meet the needs of qualified medical practitioners who may wish to obtain the Diploma in Public Health of the Royal Colleges of Physicians of London and Surgeons of England has been arranged by the Technical College Committee and the Health Committee of the City Council. For this purpose the Technical College has recently been placed upon the list of recognised institutions by the Royal Colleges. The proposed course will extend over 25 weeks, and will include lectures and laboratory work in bacteriology and pathology and in chemistry. The course in bacteriology will be conducted in the Public Health Laboratories. Dr. William Campbell has been appointed lecturer in bacteriology and the pathology of industrial diseases, and Dr. R. Cecil Robertson assistant lecturer and demonstrator in serology and immunology. The course in chemistry will be conducted in the Chemical Laboratories of the Technical College, under the direction of Dr. R. D. Abell.

# Annotations.

"Ne quid nimis."

## THE FELLOWSHIP OF THE ROYAL SOCIETY.

IN scientific circles the elections to the Fellowship of the Royal Society are scanned with a keen and jealous eye, to judge which sections or sub-section may claim the largest share of this coveted honour. Medicine is fortunate in that she can justly count in her list those who bear any part in the teaching of medical students, or whose work has intimate relation to medical research. Of those recently selected the physicists, Professor W. L. Bragg and Professor W. H. Eccles; the biologists, Dr. W. G. Agar, Dr. W. T. Calman, and Dr. A. H. Church; and the chemists, Professor K. J. P. Orton and Professor J. C. Philip can certainly be placed in these categories, while the services of Mr. C. U. Yule and his fellow statisticians, already invaluable, will be requisitioned to a still greater extent as medicine becomes a more exact science. The qualified medical men include a distinguished ophthalmologist, Mr. J. H. Parsons, while pathology and bacteriology are well represented in the persons of Professor Georges Dreyer and Dr. J. C. G. Ledingham. No one of these needs introduction to readers of THE LANCET. Professor Dreyer's recent work on the measurement of vital capacity and of normal basal metabolism has appeared in our columns, and within the last few weeks Dr. Ledingham has published a valuable contribution to our knowledge of cultural diagnosis. We congratulate these new Fellows in the name of all their colleagues in the teaching and in the scientific practice of medicine.

## THE FULL USE OF ARTIFICIAL LIMBS.

THE letter from Dr. M. Dockrell in THE LANCET of Feb. 19th raises the important questions: To what extent are patients who have suffered amputation able, by the light of nature, to use the limbs with which they are provided, and how great is their disability when properly fitted? Other questions also demanding a reply are: Can these patients be benefited by physical treatment? Is this treatment perfected? Is it procurable? Familiarity is presumed with the pioneer work of Captain Rowlatt Maxwell, C.F., amongst men who have undergone upper-extremity amputation. Provided the patient will make the effort required to use his prosthesis, instead of relying upon the remaining limb to do the work of both, he can gain great help from his appliance, although considerable disability must needs remain. Amputation of a lower limb, on the other hand, should entail little or no disability provided that 4 inches of bone are left; with less than this, disability becomes pronounced. Yet there are many patients with above-knee amputations, and even some with below-knee, who use their artificial limbs so indifferently that their handicap is severe alike in work and play. This should not be. The ordinary method of training—namely, to place the patient in his limb and instruct him to walk up and down prepared slopes and so forth—is inadequate. Some may learn the full possibilities of their limb by the light of nature; few are so fortunate. For the latter a special course of training was devised at St. Thomas's Hospital, which provided accommodation for a certain number of limbless officers at the request of the Ministry of Pensions. Here it was found that even for above-knee amputations the patient should not be incapacitated, whatever his walk or station in life. The mining engineer, the traveller, or the golf professional should be able to return to his duties or his recreations. Training is supported by the knowledge that the blind tabetic is not ataxic until the last stage of his disease, while many tabetics with good vision can be trained until their disability is negligible. It was surmised that patients with amputations should be better off than the tabetic, as joint- and muscle-sense are intact in the remainder of the limb, however small, and common sensation can be educated to a pitch of efficiency which largely compensates for the lack of feeling in the artificial part of the limb. And this was found in practice to be true. Dancing, jumping, walking naturally up and down stairs are all within the scope of practical possibilities, but only, for the most part, as the result of careful training. Dr. Dockrell has indicated the value of muscle-training for below-knee amputations. Naturally, the importance is greater the higher the amputation. But more important still is the education of joint, muscle, and common tactile sensations. These can be developed until the patient can actually feel with his artificial foot sufficiently to recognise its position on the ground or in space, and can detect any trifling irregularity of surface. Full efficiency cannot be restored unless the patient is fitted with a limb sufficiently light in weight to enable him to use it without fatigue either of muscle or sensation. Fortunately the controversy over the relative merits of the light and heavy limb is now a thing of the past, although comparatively few of the light-metal limbs have so far been issued. But adequate training is essential if the best use is to be made even of these limbs, and it should be available for the many. The so-called training, as at present in vogue, is inadequate; muscle-training and education of the various senses are imperative if full success is to be attained. To accomplish this every muscle which controls the movements of the remaining joints needs to be fully developed by special exercise and training, and their coördination re-developed to meet the alteration of function required of them. Not only have these muscles to learn the control of the joints on which they act directly, but also that of the artificial joints in the distal part of the limb. The use of "harness" of the central knee control type is a confession of inability to train the muscles which govern hip movement to control that of the artificial knee. Yet this training is practicable in almost every case, and the patient thereby saved from unnecessary apparatus and from the compulsion of using muscles other than those intended by nature for the purpose of walking. Efficiently to carry out the necessary training presupposes an intimate knowledge of muscle action, of joint movement, of the nature and function of all common and special sensation, and experience in training modelled on the lines originally laid down by Fränckel. To entrust this highly specialised work to an orderly, a nurse, or even to a medical gymnast, who has not been specially trained in work of this description, is to deprive patients of the full benefit of their limb. The difficulty of securing competent instructors is a real one, but not insuperable if those in authority recognise the need.

## THE SUSPENSION STABILITY OF BLOOD CELLS IN PULMONARY TUBERCULOSIS.

IN 1917 Fahraeus showed that in pregnancy and certain diseases the blood cells in a column of blood gravitate to the lower sections of the column more quickly than under ordinary conditions. In *Beiträge zur Klinik der Tuberkulose* (1921, Bd. xlvi., Hft. 2) his countryman, Dr. Alf. Westergren, publishes a series of investigations on 500 persons, most of whom were inmates of a Stockholm tuberculosis hospital. His technique was as follows. A "Record" syringe of about 1·2 c.cm. capacity was used, and one-fifth of its space filled with a 3·8 per cent. solution of sodium citrate. A vein of one arm was then punctured and the syringe completely filled with blood. This was then shaken up in a small test-tube and then aspirated into a cylindrical glass pipette, with a capacity of about 1 c.cm. and a height of 200 mm. This pipette was kept vertical, and after an hour the length of the column of clear plasma was read off. After carrying out more than 3000 such tests Dr. Westergren found that the rate of sedimentation varied from 1–2 to as much as 120 mm. in the hour. The rate in a normal person was about 2 mm. per hour, and it was regarded as definitely pathological when it was 10 mm. or more. In the case of tuberculosis the suspension stability of the blood was inversely proportional to the activity of the disease. When the rate of sedimentation was within the normal

limits there were also no clinical signs of active disease, and the prognosis, as judged by the clinical evidence, was good. In some afebrile cases the normal stability of the blood was much impaired, and the opinion was formed that this test was a much more reliable index to the degree of activity of the disease than the patient's temperature. The rate of sedimentation was invariably increased by fever, particularly when this was due to tuberculosis; and it was noted that a febrile period was often preceded by an increased rate of sedimentation. This test is, however, certainly not specific; in addition to pregnancy and acute infectious diseases, Bright's disease, syphilis, certain forms of "rheumatism," diseases of the blood, and other conditions may greatly hasten the rate of sedimentation. The test would, therefore, seem to be of less value in diagnosis than in determining the degree of activity of tuberculosis and its prognosis.

## FIFTIETH ANNUAL MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

THE fiftieth annual meeting of the American Public Health Association will be held in New York City in November next. The date which is tentatively announced is Nov. 14th–18th. It is especially interesting to ourselves to note that Dr. Stephen Smith, the founder and first President of the Association, who is now entering his ninety-ninth year, is expected to celebrate his approaching centennial, together with the semi-centennial of the Association. Dr. Smith was for many years one of our correspondents in America. The first organisation meeting of the Association was held in New York City on April 18th, 1872, and that is one of the reasons for selecting the same place for the celebration of the semi-centennial. Other considerations are the convenience to foreign representatives and to Dr. Smith, who lives in New York City. Moreover, a plan will then be feasible to conduct demonstrations of public health methods in the laboratories, executive offices, garbage disposal plants, and similar centres of public health interest, where New York City is often a model of administration. It is expected to present in connexion with the celebration a review of the progress of the various branches of public health within the last 50 years. The sectional programmes will include Public Health Administration, Vital Statistics, Laboratory, Food and Drugs, Sociology, Sanitary Engineering, Industrial Hygiene, and Child Hygiene.

## CARCINOMA OF THE STOMACH IN A BOY.

Dr. D. A. Laird,[1] of Edinburgh, records the case of a boy, aged 15, with an unimportant hereditary and personal history, who was admitted to hospital for pain in the chest and back of a fortnight's duration, with occasional vomiting. On admission a small, hard, epigastric swelling was found just medial to the left costal margin. There was no tenderness, but a dull pain was complained of over the swelling, radiating to the left scapula. The liver was enlarged and tender. On examination of the blood leucocytosis was found. Both test-meal and vomit showed an absence of free hydrochloric acid. Nothing was found on X ray examination. Seventeen days after admission to hospital laparotomy was performed by Professor Alexis Thomson, who found an inoperable tumour of the lesser curvature of the stomach, with secondary nodules in the liver. Glands were excised from the mesentery for examination and the abdomen was closed. The operation was followed by temporary improvement, but death took place four weeks later, only two months after the onset of the first symptoms. The tumour, which on microscopical examination proved to be a columnar-celled carcinoma, was found at the autopsy to involve the whole of the lesser curvature of the stomach, and the entire posterior wall medial to the cardiac orifice as far as the greater curvature. Perforation of the stomach had occurred shortly before death, as the peritoneal cavity showed gastric contents but no signs of inflammatory reaction. Metastases were found in the liver, pancreas, diaphragm, and the gastric, pyloric, aortic, and mediastinal lymphatic glands. Commenting on the case, Dr. Laird draws attention to the sex of the patient, showing that the great majority of recorded cases of carcinoma of the stomach under 30 have occurred in males, though it may be noted that a case under Sir Norman Moore was in a girl aged 13. Other noticeable features in the present case are the rapid course characteristic of the disease in young subjects, the temporary improvement after laparotomy, which is not infrequent in inoperable carcinomata, and the rare metastatic involvement of the diaphragm.

[1] Edinburgh Medical Journal, February, 1921.

## EXPENSIVE ECONOMY.

THE intention of the London County Council to withdraw its annual grant to the Physiological Laboratory of the University of London, and the consequent decision of the Senate to close the laboratory "failing the assurance of adequate support before the end of March, 1921," threaten a disaster, the extent of which our readers will realise. The laboratory is the only institution in the United Kingdom where the requirements of elementary teaching do not to some extent interfere with the development of research work, and the prospect of deprivation of the facilities for original investigation, which have proved valuable to many workers in physiology, has occasioned strong protest. The Senate have given as a second reason for their resolve, the fact that more space is required for general university purposes, while the London County Council is presumably expecting shortly to have to contribute largely to the establishment of the University on a new site. But whatever the future demand upon space, it is surely worth while to leave the laboratory in situ for what can only be a comparatively short period of time; and the grant of £500 a year now made by the Council does not seem large in view of the expense of the removal of the University already contemplated, and is very small in proportion to the scientific value of the work done. It is to be hoped that the Council will reconsider its decision, and that the Senate, if they cannot see their way to let the laboratory remain in its present quarters, will, at any rate, take steps to house it elsewhere. At a recent meeting of the Medical Faculty of the University resolutions were passed urging the continuance of the work, preferably at the Imperial Institute, and suggesting that, failing the support of the Council, the Senate should allow a sum of £1300 for the triennium ending in August, 1924, even if a portion of that sum has to be taken from the reserve fund of the University. The reserve fund is reported to stand at a considerable figure; but if assistance from this quarter should remain lacking it is almost impossible to believe that some private individual or corporate body will not come forward with the means necessary to ward off what would be a deserved reproach to public intelligence.

## CZECHO-SLOVAK MEDICAL COMMISSION.

ON Feb. 18th, at the Czecho-Slovak Legation, the members of the Commission gave to representatives of the press their impressions of a visit to this country, which terminated officially on Feb. 24th. The members of the Commission, who were officials of the Czecho-Slovakian Ministry of Public Health and Physical Education, said they had studied the English and American systems rather from the point of view of public hygiene and sanitation than from that of medicine. Comparing the English and American services they expressed the opinion that the former, with its combination of central and local control, was more suited for adaptation to the needs of their own country. They were accustomed to State organisation—the old Austrian system had been completely centralised and very uneconomical—and nothing in England had impressed them more than the voluntary hospitals. They had obtained much valuable information in matters of school hygiene and child welfare generally, including pre-natal care and milk control; the milk shortage in Czecho-Slovakia was at present a

source of great difficulty. A movement was already on foot in that country to group districts together for the more comprehensive treatment of tuberculosis and venereal diseases; in the matter of the education of medical officers of health and lay health visitors they hoped to follow the English example. Their public health officials were only allowed to enter the service after two years' ordinary practice; hitherto, moreover, no body comparable to the English health visitors had been organised. Water-supply and housing had also attracted the special attention of the Commission. With regard to physical education in Czecho-Slovakia, it was remarked that a law would shortly be enacted making compulsory a system of training for men up to the age of 21—i.e., up to the beginning of the period of military service. All townships, &c., would be required to provide and maintain space and apparatus for the working of this national scheme. The compulsion was not extended to girls, but the "Sokol" Athletic Association, with branches all over the country, was awakening widespread interest in the physical development of both sexes. Questioned as to the expense of the projected reorganisation of public health services in Czecho-Slovakia, Dr. Karel Driml, who acted as interpreter, explained that the State would bear the entire cost, and that the impoverished condition of the country would make it necessary to move slowly. In conclusion, members of the Commission expressed the gratification afforded them by the cordiality of their reception in this country, and whilst regretting the short duration of their visit and the resultant limitation of their movements, they hoped that the contact thus established with English medical and public health institutions would be maintained with mutual advantage. They wished particularly to mention with gratitude the name of Dr. J. A. Glover, of the Ministry of Health, who had acted as their guide throughout the visit and had given them every possible assistance.

## RUPTURE OF SYPHILITIC PAPILLARY MUSCLE.

A CASE of a very rare accident—rupture of a papillary muscle of the heart—has recently been reported by E. D. Spalding and W. C. Von Glahn.[1] A coloured labourer, aged 31 years, was admitted to the City Hospital, Baltimore, on March 23rd, 1920. There was a history of a venereal sore in 1905 and of a miscarriage of his wife. Fifteen months before admission he had an attack of hoarseness for three weeks, after which he suffered from dyspnœa and nocturnal cough with bloody sputum. This subsided spontaneously, but returned more severely a year later, when he was admitted to the University of Maryland Hospital on Jan. 5th, 1920. The apex beat was in the sixth interspace 14 cm. to the left, where an indefinite presystolic thrill was felt. There was a diffuse præcordial heave. At the apex the sounds were replaced by a blowing systolic and short diastolic murmur. At the base and down the sternum a short diastolic murmur replaced the aortic second sound. The second pulmonic sound was accentuated. There was slight dullness at the base of the right lung behind, and the liver extended three finger-breadths below the ribs. Blood examination showed slight secondary anæmia and a positive Wassermann reaction. The X rays revealed an enlarged heart and aorta and clouding at the base of the right lung. Compensation was gradually restored, and he was discharged on Feb. 27th. He steadily went down hill, and after a month was admitted to the City Hospital. He was œdematous and dyspnœic. The pulse was rather rapid and collapsing but regular, and of fair quality. He did not appear to be in a bad condition, and was given a bath in the ward. Immediately afterwards he complained of feeling ill. He was cyanotic, sweating, and very dyspnœic with rapid, thin, and weak pulse. He was wheeled to his bed, and three minutes later was frothing at the mouth and nose. The heart was found greatly dilated, chiefly to the left. Venesection was immediately done, strophanthin administered intravenously, and morphine and atropine subcutaneously. The pulse became stronger, but the respirations were slow and very laboured, with tracheal rhonchi. He was turned on his face and artificial respiration performed, but he soon died. The diagnosis was aortic and acute myocardial insufficiency due to syphilis. The necropsy showed a greatly hypertrophied heart, chronic passive congestion of the viscera, and œdema of the lungs. The cavity of the left ventricle was much enlarged, measuring 12 cm. from mitral ring to apex. The posterior papillary muscle was Y-shaped, being divided into two pillars. The pillar to which the chordæ tendineæ from the right half of the aortic leaflet of the mitral valve were attached was ruptured close to the point of division. The fragment attached to the valve was yellowish-white, and the endocardium over it opaque. The torn end was irregularly conical, and covered with firmly adherent clot. In the centre was muscle still recognisable surrounded by a yellow opaque ring. The endocardium was thickened below the aortic valve and over some columnæ carneæ, and there were many small endocardial hæmorrhages. The myocardium was greyish-red and its muscular fibres were hypertrophied. In the aorta was a large, oval, corrugated plaque involving the left posterior and anterior cusps. The anterior half of the left posterior cusp was entirely destroyed and the anterior cusp was eroded. Microscopic examination showed a large area of coagulative necrosis in the stump of the ruptured muscle, around which leucocytes had accumulated. Just beyond the leucocytes the muscle fibres had shrunken almost to threads and their striations and nuclei had disappeared. Next to these was a zone of fibres containing droplets of fat. The muscle fibres elsewhere were hypertrophied and the connective tissue was increased. In Levaditi preparations spirochætes were found just beyond the necrotic area. In 1911, Wankel, a German writer, reported a case of ruptured papillary muscle, and in the literature could find only four other cases. In the same year Dr. J. H. Teacher reported a case. In all the rupture was in the left ventricle. In four there was sclerosis of the coronary arteries, and in two thrombosis. In the present and in one recorded case these arteries were normal. In none of the cases was there any reference to syphilis, but in one aneurysm of the aorta was present.

[1] Johns Hopkins Hospital Bulletin, January, 1921.

## ARMISTICE SUNDAY.

WE are informed by the executive officer of the Joint Council of the British Red Cross and Order of St. John, that the heads of the churches have agreed to recommend that collections should be made in aid of the work of the Council next Armistice Sunday, Nov. 13th. Similar steps have been taken throughout the Empire, so that in all parts of the world worshippers will join in one common act on the same day. In America this has been already arranged. The appeal has met with the hearty approval of the Archbishops of Canterbury, York, and Wales, and the Primate of All Ireland. The Cardinal Archbishop of Westminster has kindly promised to place the matter before his Bishops at their annual meeting in April. The heads of all the Free Churches have signed the memorandum, as also has the Chaplain of the Fleet, and the Chaplain General of the Forces. Where Nov. 13th has, by virtue of some old custom, been reserved for a particular charity, some other convenient date can be selected in the case of that particular church.

## A DISAPPOINTING NECESSITY.

A CIRCULAR addressed by the Ministry of Health to local authorities calls their attention to an announcement made in the House of Commons in December by the Chancellor of the Exchequer to the effect that all spending departments must practise rigid economy, and in particular must hold in abeyance schemes involving expenditure not yet in operation. The circular, applying the principle thus enunciated to the matters within the scope of the authority of the Ministry, recognises the difficulty of economy where the public health is concerned, but states in equally plain terms that the need for lightening the burdens on the community is imperative. The

policy, it declares, must be to restrict expenditure to what is immediately necessary in the interest of the public health, to utilise existing premises and staffs to the fullest advantage, to secure full value for every pound spent, and to refrain in general from capital expenditure. In addition to the practice of economy of the ratepayers' money, private help and benevolence must be called in aid as much as possible in the promotion of useful auxiliary services. Services particularly mentioned in the circular are those concerned with the treatment of tuberculosis and of venereal disease and with the welfare of the blind. With regard to these, as to other matters, it is insisted that there should be no capital expenditure except where work has been begun and cannot be abandoned or modified. It is particularly against new building schemes that the circular is directed. The necessity for general economy of expenditure, in view of the huge burden now imposed upon rateable property, cannot be denied. It is disappointing that a new Ministry having high hopes of great and good work before it should have to hold its hand and to restrain the hands of others, where the promotion of the public health is involved, but it must be recognised that in thus insisting on economy it has done no more than the situation demands.

## CHILD WELFARE IN AUSTRIA.

IN the early winter of 1919 there were in Vienna 36 infant welfare centres, at which 20,000 children were attending. Of these centres, eight were in the hands of the municipal authorities, while four independent organisations were responsible for the remainder. Many of these dealt with the first year of life only, but the work of the municipal institutions was broader, including antenatal consultations and the care of the child up to the age of 18. Most of the centres were well organised with up-to-date appliances and competent medical treatment; but all were handicapped by the scarcity of such elemental necessaries as milk, soap, linen, and paper. From 80 to 90 per cent. of the attending one-to-fives were found to be rachitic or tuberculous and stationary in weight; and when in November, 1919, the Society of Friends' Relief Mission was able to arrange for small regular supplies of food to certain constant attenders of centres the rise in weight of the children was frequently extraordinary. Depôts were opened where mothers of such children could obtain a ration for them on production of a card signed by the doctor of a welfare centre, the charge made being estimated with regard to the father's earning capacity, some 15 per cent. of the rations being supplied free. It is hardly surprising that the number of children eligible for these rations very soon became too great to deal with, and the Vienna Board of Health then combined all infant welfare organisations into one body, the Hauptausschuss für gesundheitliche Jugendfürsorge. Existing centres were extended and reorganised, with the result that it was possible to open 34 new centres, to examine all the children in the city under six years of age, and to keep those who required it under supervision. Equipment was still scanty; children were weighed on luggage-scales and examined on tables for which, as a rule, neither cloth nor paper covering was obtainable. A timely gift of soap from the American Red Cross enabled medical officers to wash their hands. How keenly this work among the children appeals to local workers is evident from the fact that during a recent collection for the children in Vienna doctors and nurses contributed one-tenth of their monthly salaries; at what sacrifice may be seen from a study of our Vienna Correspondent's recent letters. Between June and October of last year 85,000 children were examined, 54,000 of whom were receiving supplementary fortnightly rations, and it was possible to note some improvement on the conditions of 1919; although only 10 per cent. were normal in weight, no more than 56·1 per cent. showed signs of actual disease. It is an extraordinary fact, and one of great interest to the study of scientific dietetics, how small has been the increment necessary to change a down-grade or stationary child into an up-grade one. Fortunately, much study is being given in Vienna to these new and intimate problems of national nutrition. Dr. Harriette Chick and Dr. Elsie Dalyell, on behalf of the Lister Institute, are still working in Vienna hospitals at the problem of vitamines and the most effective way of utilising them on a minimum caloric diet. We publish this week a valuable study of the food-supply and state of nutrition of a representative sample of the Viennese working classes by Miss M. R. Gribbon and Miss M. Ferguson, the two investigators using methods which under Professor Noel Paton, of Glasgow, have already thrown light on the ætiology of rickets nearer home. In the remainder of German-speaking Austria a system of infant welfare centres has been established, controlled by a central body, the Landesjugendamt. The conditions, especially in the small industrial towns, are at present actually worse than those in Vienna, for food-supplies are inadequate and assistance is not so widely available. There is ample scope within the borders of the old Hapsburg dynasty not only for abundant charity but also for the discerning brains which shall apply this charity to the best results.

## A HANDICAP REDUCED.

Dr. Monod demonstrated the retarded kinema on Feb. 23rd to a hall filled to capacity. Moreover, even those among his audience who normally take but little interest in medical politics listened with sympathy to his ideals of a closer bond between the profession in England and France, and with keen attention to his tentative plans for its promotion. The subject was not devoid of difficulties, but so tactful was his approach and so reasonable his appeal that the success of Dr. Monod's mission is assured. Many arrived quite ready to cement cordial professional relations with a country showing such a neighbourly interest in the reduction of their golf handicaps, and left convinced of other even more important advantages to be gained from a closer fellowship with their colleagues in France. The actual show was novel to many of those present. The slowed pictures of athletes putting the weight, throwing the discus, and jumping with and without the aid of a pole were miracles of effortless grace. No sign of sudden stress was apparent at any one moment, though an increase or relaxation of muscular tension might be detected on closer study. Dr. Monod made the interesting claim for his compatriot, the physiologist Marey, of having invented the apparatus for taking a rapid series of photographs of life in motion. But for the perforations along the edge of the film, he left little for subsequent ingenuity. The cardiac film was, as Dr. Monod said, more an indication of the possibilities of this method in physiological research than a contribution to our knowledge of heart movements; the pathology of the heart-lung preparation, said to be in a state of auricular fibrillation, was not very clear. An exposition of the golf swing, however, gave great satisfaction, but it would be necessary to administer a "repeat" of the mixture of several movements many times before their analysis could be used to cure individual faults; unfortunately, the films were shown to the sufferers only once. But if Dr. Monod failed to effect a general reduction of golf handicaps, he achieved a big step towards the reduction, if not the removal, at least of that handicap to universal medical fellowship which depends only on insular prejudice.

WE regret to announce the death on March 1st of Sir Felix Semon in his seventy-second year.

A DISCUSSION upon the Eradication of Tuberculosis in Men and Animals will be held in the Robert Barnes Hall of the Royal Society of Medicine, 1, Wimpole-street, London, W., on Monday, March 14th, at 5.30 P.M. The discussion will be opened by Sir John McFadyean, who will be followed by Sir Clifford Allbutt, Sir G. Sims Woodhead, Dr. Arthur Latham, Professor Hobday, Dr. A. C. Inman, Mr. Cyril Nitch, Dr. H. Sutherland, and others. The chair will be taken by Sir John Bland-Sutton.

# IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

*A Challenge to Professional Secrecy.*

THE text of the Order[1] issued in various parts of Ireland by the competent military authority, and served on the secretaries of the general hospitals and the medical officers of certain workhouse and district hospitals, has naturally caused much perturbation in the minds of the medical men affected thereby, and it opens a professional question of more than local interest. The demand made by a legally constituted authority that doctors are to act as informants in regard to their own patients is, as far as we know, unprecedented in these countries. It is stated by Dr. George Sigerson, in an interview reported in a Dublin paper, that a similar demand was made on the Paris hospitals in the time of Napoleon III., but the hospitals refused to obey. There is no point of ethics to which the medical profession has clung more tenaciously than its obligation to secrecy as regards personal knowledge gained in professional work. From Hippocrates down to the present day professional confidences have been regarded as inviolate.

The latest collective pronouncement regarding secrecy made on behalf of the profession is that of the Representative Meeting of the British Medical Association held last June at Cambridge. It is in the following terms:—

> That having further considered the question of professional secrecy viewed from the standpoint of the medical profession and with special regard to venereal diseases, the Representative Body reiterates the opinion that a medical practitioner should not, without his patient's consent, voluntarily disclose information which he has obtained from such patient in the exercise of his professional duties.

Though the meeting was specially considering the problems arising out of the State-provided treatment of venereal diseases, the proposition is general. How far a medical man in obeying the military Order in Ireland would be acting voluntarily or under compulsion it is difficult to say, but it is clear that in giving information regarding his patients in obedience to a general order he would be going much further than if he were merely to answer specific questions when produced as a witness in court. The duty of a medical man who, from information gained professionally, suspects that a crime has been committed is by no means clear. Dixon Mann[2] says:—

> "It is not part of his [the practitioner's] duty to act as a detective and give information to the police whenever he comes across crime. Yet at the same time he must use reasonable discretion, and in a serious case he may be justified in subordinating the immediate personal obligation to public duty."

He further quotes from Mr. Justice Hawkins:—

> "When it was said that there was a general rule existing in the medical profession, that whensoever they saw, in the course of their medical attendance, that a crime had been committed, or was about to be committed, they were in all cases to go off to the Public Prosecutor, he was bound to say that it was not a rule which met with his approbation, and he hoped it would not meet with the approbation of anyone else. There might be cases where it was the obvious duty of a medical man to speak out."

What is more pertinent, perhaps, in the present state of Ireland is that the Order is not likely to prove effective as regards its object, while it may have the undesirable result of estranging the medical profession as a whole from those whose sole duty in Ireland is to restore law and order. It is understood that the Council of the Royal College of Surgeons in Ireland has, after serious consideration, decided to make representations on the subject to the military authorities. We may hope that as a result of such representations the authorities may decide to withdraw, or if that is impolitic, to ignore the Order.

*Trial of a Doctor's Wife.*

It is announced that Mrs. Ryan, of Wexford, wife of Dr. James Ryan, M.P. for South Wexford, has been fined £50 by a military court in Waterford for refusing to post in one of the windows of her house a notice proclaiming martial law. In default of the payment of the fine within seven days a distress was to be levied on her goods, and in default of distress she was ordered three months' imprisonment. Dr. James Ryan has been under arrest for some weeks past without being brought to trial. He is stated to have been carried as "a hostage" in lorries patrolling disturbed areas.

*Death of Sir Charles Cameron.*

The death of Sir Charles Cameron, the veteran medical officer of health of Dublin, occurred last Sunday, in his ninety-first year, after a prolonged illness. The only surviving son of Captain Ewen Cameron, of Lochaber, and educated at Dublin and Guernsey, he was already public analyst in the capital before taking medical qualifications at the Coombe Hospital, Dublin, when he was 38 years old. A few years later he became F.R.C.S. Irel. and D.P.H. Camb., thus equipping himself on many sides for the position of adviser to the public health department of the Dublin Corporation, a position which he held for half a century. Over and above his onerous official duties Cameron found time to preside for some years over the Royal College of Surgeons of Ireland, in which he occupied the chairs of hygiene and chemistry. He was Harben gold medallist in 1902. In 1885 he received the signal honour of knighthood in recognition of his services to public health, being the first health officer to be thus distinguished. Professional honours of all kinds naturally fell to his share. Sir Charles Cameron was a prolific writer with a flowing pen and lucid style. His "Manual of Hygiene and Compendium of Sanitary Laws" found readers of all kinds, and his "History of the Royal College of Surgeons in Ireland" has taken its place in the archives of medical history.

*Ulster Medical Society: Annual Dinner.*

The annual dinner of the society was held in the Medical Institute, Belfast, on Feb. 17th, when Dr. Houston, the President, occupied the chair; the company numbered about 70. Among the guests were Sir Almroth Wright, F.R.S.; Judge Matheson, Recorder of Belfast; the High Sheriff, Councillor W. G. Turner; Mr. S. G. Crymble, president of the Northern Law Society; and Dr. Alexander Fleming. After dinner the President gave the toast of "The King," which was received with enthusiasm. Professor J. A. Lindsay proposed the toast of "The Belfast Corporation," which was responded to by the High Sheriff in the absence of the Lord Mayor, who had been called to London on official business. The President gave the toast of "Our Guests," and spoke of Sir Almroth Wright's important contributions to medical science and of his cordial relations with those members of the society who had visited his laboratory at St. Mary's Hospital. Sir Almroth Wright, in responding, emphasised the importance of experiment in the advance of scientific truth, and expressed his conviction of the fallaciousness of too much reliance upon experience. Dr. Fleming also responded. Dr. J. S. Morrow gave the toast of "The Legal Profession" in an amusing speech. Judge Matheson, in responding, paid a high tribute to the beneficent work and the high ethical standards of the medical profession. Mr. Crymble also responded. Dr. J. E. MacIlwaine gave the toast of "The President." Dr. Houston made a suitable response, and concluded by proposing the toast of the acting secretary, Dr. R. Marshall, to whom the success of the evening was mainly due. Dr. Marshall, in acknowledging the toast, expressed the pleasure which the members of the society felt at the convalescence from his long illness of the secretary, Dr. W. W. D. Thomson. On the following afternoon Sir Almroth Wright addressed the society on the subject of Acidæmia. There was a crowded attendance and the address was heard with much interest and pleasure.

*Belfast Maternity Hospital.*

The annual meeting of this institution was held on Feb. 24th, Mr. Herbert Ewart, chairman of the board of governors, in the chair. The annual report showed a large increase in the volume of work during the past year, both in the hospital and the district work carried on in connexion with the institution. During the year 831 patients were treated, 517 children were born, 31 were stillborn, and 13 died. In the district work 4774 visits were paid. The maternal death-rate was 1·34 per cent. The report made sympathetic reference to the resignation of Dr. Brice Smyth after a connexion with the hospital for the long period of 50 years, and to the death of Sir John Byers. Professor C. G. Lowry and Mr. T. S. S. Holmes, F.R.C.S., had joined the staff. Twenty-one nurses had entered for and passed the C.M.B. examination. The financial report showed a small deficit, £120, on the year's working. The endowment fund had been considerably augmented. In seconding the adoption of the report, Professor Lindsay mentioned that in the ensuing year the hospital would undertake work in connexion with the

[1] THE LANCET, Feb. 26th, p. 453.
[2] Forensic Medicine and Toxicology, 5th ed., p. 346.

maternity and child welfare movement. He also dwelt upon the necessity for larger accommodation for maternity work in Belfast. Dr. H. D. Osborne was elected a governor in succession to Dr. Brice Smyth, resigned.

*Central Midwives Board for Ireland.*

A meeting was held at the office of the Minister of Health, St. Stephen's Green, Dublin, on Feb. 24th, with Sir Edward Coey Bigger in the chair. The secretary reported that at the examination held in Dublin, Belfast, and Cork simultaneously on Feb. 8th and 9th 68 candidates presented themselves, of whom 61 passed and were granted certificates. The total number on the Midwives Roll of Ireland is now 2902. At a special meeting of the Board subsequently held the name of one of the midwives was removed from the Roll.

Feb. 28th.

## TUBERCULOSIS.

*When is a War Pensioner Tuberculous?*

IN 1918 Dr. Büttner-Wobst published a paper in which he made out that from 60 to 80 per cent. of the cases admitted to sanatoriums in Germany were not really tuberculous. His paper roused a good deal of criticism, and last year Dr. M. Landolt published a lengthy statistical analysis of sanatorium material, showing that only in about 6 per cent. could the original diagnosis of tuberculosis be regarded as mistaken. With these discrepant opinions for a background, it is well worth scrutinising a remarkable statement made by the London Insurance Committee. It appears that arrangements were recently made with the Brompton and City of London Chest Hospitals for the admission of 158 cases for observation. They included 73 ex-Service cases in which the diagnosis of tuberculosis had been accepted by the Ministry of Pensions and queried by tuberculosis officers. There were 37 cases regarded as tuberculous by tuberculosis officers and 48 recommended for diagnostic observation by tuberculosis officers. Of the total of 158 cases, 124, or more than 78 per cent., were considered by the hospitals mentioned as "not suffering from tuberculosis." In ten other cases the disease was regarded as arrested. Thus only 15 per cent. of the 158 cases were recommended for treatment. At first sight these figures are certainly disconcerting; they suggest incompetence to the unitiated, ignorant of the usual difficulties in the early diagnosis of tuberculosis and the special difficulties connected with a pension. These are indeed great, and one of the thoughts in the mind of a conscientious tuberculosis officer is this: I cannot be sure whether this man is tuberculous or not. If I give him the benefit of the doubt he will enjoy skilled treatment, with periodic "boards" at which a mistake, if committed, can be rectified. But if I label him non-tuberculous bitter experience has taught me that, in the event of his proving tuberculous after all, the task of securing him a tuberculosis pension will be most tedious, exasperating, and often hopeless. By their mistaken parsimony in such cases the pensions authorities have defeated their own object, and have driven tuberculosis officers to take a course which, under the circumstances, is perfectly justifiable. The remedy for this state of affairs is obvious. Another remedy which this report clearly indicates is the provision of every tuberculosis officer with a certain number of observation beds. It may be possible to diagnose advanced cases in an overcrowded dispensary, but it is absolutely impossible to decide that a case is definitely non-tuberculous. Even in a hospital, and with a case under observation for several days, the unequivocal exclusion of tuberculosis from the possible diagnoses calls not only for great skill and experience, but also in some cases for a remarkable degree of assurance. It may be noted in this connexion that already two cases reported by a hospital as not being tuberculous have subsequently shown conclusive evidence of the disease. There can be little doubt that if every first-stage patient who was sputum-positive ten years ago, and who had since kept well, were examined for tuberculosis in a hospital, a goodly proportion would be discharged as non-tuberculous if their previous records were concealed. Yet the aphorism, "Once tuberculous always tuberculous," is undeniably true.

*Heredity in Tuberculosis.*

In a paper in the *American Review of Tuberculosis* for November, Dr. Raymond Pearl has published some suggestive figures dealing with the problem of infection and heredity in relation to tuberculosis. His observations are the more valuable as they are leavened by a canny recognition of the many pitfalls awaiting the investigator who attempts to discover the comparative importance of heredity and infection. He has investigated 57 family histories, involving more than 5000 blood relatives. In 38 cases the original subject of investigation was tuberculous, and in 19 cases non-tuberculous. Each group could be regarded as a random sample of the working-class population of Baltimore, the only differential factor in the selection being that in the one case the individual with whom a history started was tuberculous, and in the other case not. Five generations were studied with the following striking results. A tuberculous person, it was found, had nearly six times as many tuberculous blood relatives as a non-tuberculous person. In other words, 7 per cent. of the blood relatives of a tuberculous person were themselves tuberculous, whereas this was the case with only 1·2 per cent. for the non-tuberculous. Where there was no immediate tuberculous ancestry (parents and grandparents non-tuberculous) 7·4 per cent. of the offspring were actively tuberculous. Nearly a quarter (22·2 per cent.) of these tuberculous progeny were known to have lived for some time before developing the disease in close contact with cases of active tuberculosis. On the other hand, of the 92·6 per cent. non-tuberculous offspring of non-tuberculous ancestry, only about one-tenth (11·2 per cent.) had been in close contact with an active case. Thus, twice as many of the tuberculous offspring of non-tuberculous ancestry had been in close contact with active tuberculosis, as had been the case with the non-tuberculous offspring of non-tuberculous ancestry. These figures stress the importance of infection. But, as Dr. Pearl points out, when one or both of the parents were actively tuberculous virtually three-fourths of their non-tuberculous offspring had been in just as close contact with active, open cases as their brothers and sisters who developed the disease. Dr. Pearl's figures show that familial contact with active, open cases is undoubtedly a factor in determining the incidence-rate of clinically active tuberculosis, but he thinks it equally obvious that such contact does certainly not account for the whole, and it probably accounts only for a small part, of the increase in the incidence of the disease occurring as the amount of tuberculosis in the immediate direct ancestry increases.

*The Farming Out of Sanatorium Patients.*

In his report for the year ending March 31st, 1920, Dr. C. Rolleston, tuberculosis officer to the Soke of Peterborough, has some candid remarks to make on the system, adopted by certain local bodies, of farming out their sanatorium cases. The disadvantages of this arrangement are illustrated by the case of a patient of over 50 who acquired tuberculosis in the army. Farmed out by the War Pensions Committee in a distant sanatorium he was suddenly discharged without a word of warning to the committee or their medical officer. His home was a common lodging-house, where his opportunities for spreading the disease would be unrivalled. Yet no opportunity was given for arranging further institutional treatment prior to his discharge. Dr. Rolleston points out that the distance of all sanatoriums from Peterborough undoubtedly deters many patients from staying for the necessary period in a sanatorium. As his figures show, the Soke of Peterborough could keep a 50-bed institution full of its own patients; and were such an institution provided in the county area friends and relatives could visit patients, who would thus be encouraged to submit to the tedium of a long stay. Dr. Rolleston is to be congratulated on bringing into

prominence one of the most important causes of sanatorium unrest in this country. His recognition of the importance of rest is summed up in the advice he gives to the wives of his patients: "Take away his trousers; his lungs will take care of themselves."

*Surgical Tuberculosis in Switzerland.*

At a recent meeting of the Swiss League against Tuberculosis special attention was drawn to the needs of those suffering from surgical tuberculosis. Their number in the whole country is reckoned as being about 15,000. Statistics at Basle have shown that among 100 such cases only 3 belong to the wealthy classes, 28 to the middle classes, and 69 to the poor. Hence the urgent need of some public help. Both Dr. Rollier, of Leysin, and Professor de Quervain, of Berne, pointed out that special care should be taken to secure for these cases treatment in an Alpine sanatorium. Dr. Rollier was able to show from his experiences of twenty years what the "cure hélio-Alpine," as he calls it, can achieve. All cases of surgical tuberculosis, except certain forms of fungous synovitis of the knee-joint or of genito-urinary affection, benefit greatly by it. It is often said that this holds good only for children, but at Leysin adults have always been in a majority, and their prognosis is not less favourable, nor is the duration of their treatment, longer than that of children. Dr. Rollier produced the following statistics of 2167 cases treated since the beginning of the war and controlled by skiagrams: cured, 1746; ameliorated, 242; no change, 147; worse, 32. With the hélio-Alpine treatment Dr. Rollier has combined a treatment of work. He founded at Leysin work and agricultural colonies which met with great success; up to the present the special sanatorium at Leysin has been the only institution in the country for the treatment of surgical tuberculosis of the poorer classes. Professor de Quervain urged that this example should be followed throughout the country. There are two solutions, the foundation of special sanatoriums and the formation of special wards in the ordinary sanatoriums for pulmonary cases. Such wards, however, require a staff of surgical specialists, as the treatment of surgical tuberculosis combining orthopædic, operative, and conservative measures with X ray cure demands, no less than the pulmonary form, a special knowledge. In this connexion the universities of Geneva, Lausanne, and Neuchâtel have launched a notable scheme—namely, the foundation of a sanatorium at Leysin specially for teachers and students of those universities suffering from tuberculosis of a curable nature. To realise this scheme a large sum of money is needed. The idea has been taken up with great enthusiasm by the universities, and a campaign has been opened in its favour. A Bill for measures against tuberculosis will soon be brought before the Federal Chambers. Hitherto the campaign has been carried on entirely by private persons, cantons, and municipalities, with varied vigour in different parts of the country. The new Bill, far from abolishing private initiative, will centralise and concentrate efforts already in operation. It also provides compulsory notification of all cases.

PAYING PATIENTS IN POOR-LAW HOSPITALS.—Reference has already been made in THE LANCET to the scheme of the Manchester board of guardians now in operation in their hospitals at Withington and Crumpsall, whereby people who cannot pay the fees of private nursing homes are admitted to all the benefits of hospital treatment, attendance, and keep for 3 guineas per week. Patients suffering from acute but not infectious or contagious diseases are admitted, and the scheme has been in operation since Feb. 1st. In view of the important principles involved, the Ministry of Health has asked for a full statement of the exact nature of the proposals and what, if any, steps have been taken towards bringing them into operation. The board's unanimous resolution, in reply, took the form of an explanation of the guardians' scheme, pointing out that their scheme is similar to those adopted in many other unions. The guardians add that the institutions have relieved many sick persons of the necessity of waiting many months before obtaining admission to a voluntary hospital, and they trust that the Ministry of Health will give them every assistance in the carrying out of their scheme.

# Public Health.

## ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

### CITY OF SHEFFIELD.

Dr. H. Scurfield has issued his report for 1920. Though a short document, it contains many points of interest. The difficulty of making an accurate estimate of the population for the years of the war and since the armistice is dealt with. The population was depleted by the men joining the Services, but there was also a great influx of munitions workers. For the birth-rate the population is estimated at 493,839; for the death-rate at 492,570. There has been a great jump in the birth-rate. The number of births registered was 13,186, being 2770 more than in the previous year. This gives a birth-rate of 26·7 and is the highest recorded since 1914, when it was 27·3. The war decline continued till the first quarter of 1919, the quarterly birth-rates for 1919 being successively 16·2, 16·8, 19·6, and 26·6, and for 1920 28·8, 26·9, 26·4, and 24·6. There were 6660 deaths registered, being 41 less than in the previous year, and the death-rate is estimated to be 13·5, being the lowest ever recorded for the city.

For the first time on record not a single death has been attributed to *enteric fever*, and it is mentioned that since 1914, in contrast with previous years, there has been no autumnal increase in the prevalence of this disease.

The steady decline in the death-rate from *tuberculosis* which took place during the first years of the century had a set-back during the war. The increase during the war was greater among females than among males, no doubt owing to the increased amount of female factory labour. Since the armistice this increase in the tuberculosis death-rate has disappeared with remarkable rapidity, rendered all the more remarkable by the fact that the improvement has taken place in spite of the bad housing conditions and overcrowding which are referred to in another part of the report. There is an increase in the number of new cases of sickness from tuberculosis of the lungs, but this is attributed to the increase in the war-depleted medical staff of the tuberculosis dispensary, which has enabled the examination of "suspects" and "contacts" to be carried out more thoroughly.

There is an increased number of deaths from *cancer*—namely, 521 for 1920 as compared with an average of 471 for the previous five years. This increase is among the male deaths, which are 254 for 1920 and 209 for the previous quinquennium, the female deaths from cancer during 1920, being 267 as compared with 262 for 1915–19.

The *infant mortality* is 103 per 1000 births as compared with 96 in 1919, which was the lowest ever recorded for Sheffield. Although 103 is Sheffield's second best on record it is shown on page 7 to be 23 in excess of the rate for England and Wales, and one wonders to what extent this is attributable to the bad conditions for infants resulting from the overcrowding. The neo-natal mortality was 38 per 1000 births and has to be compared with 43 for the year 1919. Dr. Scurfield draws attention to a slight recrudescence of influenza which took place during May, 1920, and gives reasons for supposing that Blackburn, Halifax, and Sunderland were similarly affected during the month of April.

The work of the *maternity and child welfare* department goes on increasing. There were 51,456 attendances at the "baby consultations" as compared with 39,316 in the previous year. The pre-natal work is not extensive. Only 112 new cases attended, 47 of whom were recommended by midwives and 48 by the women inspectors.

*Dental cases.*—Only nine patients were treated by the dentist. It is obvious that the need for attention to the teeth of the expectant and nursing mother is not understood in Sheffield, and that a large amount of propaganda work will have to be done in order to combat the widespread superstition that it is not safe for the mother to have her teeth put right at these times. Few things have been more striking recently than the demonstration of the effect on the nursling's health produced by having the mother's decayed teeth extracted and her mouth "cleaned up."

In spite of overcrowding and want of proper lying-in accommodation for the largely increased number of confinements, the death-rate from *puerperal fever* and other complications of childbirth is lower than in the two previous years. When the triennium 1918–20 is compared with the pre-war triennium an increase in the death-rate per 1000 births from puerperal fever from 1·3 to 1·8 is recorded, while the death-rate from other complications of child-bearing remains the same.

During 1920 302 cases of *ophthalmia neonatorum* were recorded as compared with 219 in 1919. This increase is partly accounted for by the increase in the number of births from 10,146 in 1919 to 13,186 in 1920. During 1920, however, the damage to the eyes was much greater. In 1919 there were no cases of lost eyesight known to have occurred. In 1920 two children were blinded in one eye and one in both eyes. The blind child died subsequently. In addition, there were 20 cases under observation at the end of the year, including some severe ones which are likely to cause further eye-destruction. We believe that ophthalmic surgeons are agreed that these cases should hardly ever occur with proper attention at birth, as in a well-conducted lying-in hospital, and that when they do occur the eyesight should, practically speaking, never be lost if efficient treatment is applied at once. We have, therefore, to face the fact that somewhere about one-third of the inmates of blind institutions are there owing to inefficiently treated ophthalmia neonatorum.

The work of the Sheffield clinics for *venereal diseases* is shown in the following statement:—

| | *1918.* | *1919.* | *1920.* |
|---|---|---|---|
| Total number of persons dealt with ... | 1,806 ... | 3,215 ... | 4,871 |
| Total attendances of out-patients ... ... | 12,846 ... | 21,770 ... | 28,369 |
| Total number of in-patient days .. ... | 4,345 ... | 3,189 ... | 2,866 |

The cost per person dealt with was £3 0*s.* 9*d.* in 1918, £2 5*s.* 4*d.* in 1919, and £1 14*s.* 3*d.* in 1920. The diminished cost per person is due to the fact that it has been found possible to give a greater proportion of the injections of salvarsan substitutes to out-patients.

We are surprised to learn that Sheffield has still as many as 10,800 privies requiring conversion.

*Housing question.*—With regard to the housing question Dr. Scurfield says:—

"The unsatisfactory feature of the year's work has been the increase in overcrowding owing to the fact that sufficient houses are not being built to accommodate the natural increase of the population. In this respect Sheffield is in a similar position to the other large towns of the country. It is impossible to condemn houses, however unfit for habitation they may be, and unless there is a very great change it will be years before we can dream of clearing slums and providing open spaces in the congested parts of our great towns."

A statement is given showing the houses built since 1886, and during each month since the armistice, followed by the comment:—

"It will be noticed that 267 new houses have been provided during the year 1920. During the same period there were 5075 marriages and 6526 more births than deaths."

A truly appalling state of affairs!

The report concludes with tables showing the death-rates, &c., in the various subsections of the city, and a comparison of the Sheffield statistics with those of the 45 largest towns of England and Wales. In the sub-sections of the city the birth-rate varies from 37 in Park A to 17·25 in Broomhall B; the death-rate from all causes from 21·55 in Sheffield North B to 8·52 in Brightside West B; and the infant mortality from 172 in Sheffield North B to 69 in Brightside West B. The table for the 45 towns shows that there were 17 towns with higher birth-rates than Sheffield, 13 with higher death-rates, and 9 with higher infant mortality rates.

### COUNTY OF KENT.

Some interesting problems connected with the administrative control of certain infectious diseases are discussed in Dr. Alfred Greenwood's annual report for the year 1919. On the subject of scarlet fever, allusion is made to "return" cases and extracts on the subject from the reports of the M.O.H.'s of Chislehurst and Ramsgate are given. In the former district an arrangement is apparently in operation by which cases discharged from the isolation hospital are examined at their homes within three days of their return by the medical practitioner who originally notified the case, and he supplies a short report on the subject. This is done with the object of preventing "return" cases. It is unfortunate that no indication of the success or failure of this procedure is given, but perhaps it has not yet been sufficiently long in operation to justify any conclusion on the subject.

Every precaution is taken in Ramsgate by the hospital authorities with the object of reducing the number of "return" cases as much as possible. With this end in view no scarlet fever patient is allowed to leave the hospital until all nasal discharge and all objective signs of complications have ceased for some time; but, in spite of this, it is impossible to prevent the occurrence of "return" cases, as, in the absence of knowledge of the cause of the disease, it is difficult to say definitely when a convalescent patient is in fact non-infectious. In some instances the infection may be quiescent at the time the patient leaves the hospital, yet an infectious nasal discharge or other morbid condition of the nose may develop or recur some time after returning home. It is therefore important, especially in the case of children, that for three weeks after leaving hospital the patient should not sleep in the same bed, or, if possible, in the same room, with children who have not had scarlet fever, and that during this period all articles such as cups, spoons, handkerchiefs, towels, &c., used by the patient should be kept distinct from those used by others.

As regards *diphtheria*, many of the reports of the district M.O.H.'s refer to the difficulties met with in connexion with "carrier" and "return" cases of the disease, but the extended facilities afforded by the county bacteriological laboratory enable these cases to be controlled with a large measure of success. In Dr. Greenwood's view, no diphtheria patient should be considered free from infection until at least three consecutive negative swabs have been obtained. Dr. D. Macdougall, M.O.H., Ashford urban district, thinks that this district has more than its share of diphtheria, and suggests that the incidence of the disease might be reduced by improving the insanitary conditions which prevail and abating the nuisances caused by the large number of hand-flushed water-closets which are found in the area. Dr. J. Mathewson, M.O.H., Bromley, expresses the view that many cases of diphtheria are now diagnosed that would have been overlooked a few years ago at a time when no facilities existed for bacteriological investigation. On the other hand, most medical men have had experience of cases in which the result of examination of the swab has been contrary to their expectations. In Dr. Mathewson's view a more extended use of swabs in cases of sore-throat, in which there is doubt concerning the diagnosis, would be helpful; and in this connexion it is to be remembered that it not infrequently happens that the diphtheria bacillus is present in the nose while absent in the throat.

Dr. E. C. Warren (Gillingham) states that mild cases of diphtheria were observed with only small follicles on the throat, which were found positive on bacteriological investigation. Such cases are often neglected, and it is only when another member of the family develops a really bad throat that a doctor is called in. This emphasises the importance of medical advice in connexion with a sore-throat in any form.

Dr. R. McCombe (Margate) calls attention to unpaved yards as a predisposing cause of diphtheria. Children playing in these muddy places suffer from wet, cold feet, which often causes sore-throat and a consequent lowered state of vitality and resisting power. Much is being done, with the assistance of the property owners, to remedy these defects, but it is hoped that everyone will assist in this matter, which is one of common interest for the welfare of the town and its inhabitants.

Dr. G. M. Tuke (M.O.H., Hollingbourn rural district) reports an instance in which six cases of diphtheria occurred in one cottage. The source of infection was a child, who had had a sore-throat five weeks previously, and was most probably a "carrier." These "carrier" cases often retain the specific bacillus in their throats for long periods. Two such cases recently came under observation, which remained infectious for nearly 12 months, notwithstanding all the doctor's efforts.

## URBAN VITAL STATISTICS.

(Week ended Feb. 26th, 1921.)

*English and Welsh Towns.*—In the 96 English and Welsh towns, with an aggregate population estimated at 18½ million persons, the annual rate of mortality, which had increased from 12·3 to 15·4 in the four preceding weeks, further rose to 15·5 per 1000. In London, with a population of 4½ million persons, the death-rate was 15·1, or 0·9 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 8·8 in Swindon, 8·9 in Acton, and 9·0 in Northampton and in Preston, to 23·6 in Southport, 25·2 in Barnsley, and 27·8 in Hastings. The principal epidemic diseases caused 254 deaths, which corresponded to an annual rate of 0·7 per 1000, and comprised 80 from infantile diarrhœa, 71 from diphtheria, 62 from whooping-cough, 29 from measles, 10 from scarlet fever, and 2 from enteric fever. Whooping-cough caused a death-rate of 1·6 in Walsall and 3·3 in Warrington. The deaths from influenza, which had been 61, 93, and 103 in the three preceding weeks, rose to 138, and included 30 in London, 15 in Portsmouth, and 8 in Sheffield. There were 3845 cases of scarlet fever and 2800 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 3919 and 2808 respectively at the end of the previous week. During the week ended Feb. 19th 9 cases of encephalitis lethargica were notified in the County of London, and comprised 2 each in Islington and Bethnal Green, and 1 each in Paddington, Stoke Newington, Stepney,

Wandsworth, and Camberwell. The causes of 43 of the 5516 deaths in the 96 towns were uncertified, of which 6 were registered in Birmingham, 4 each in Southport and Manchester, and 3 each in London and Stoke-on-Trent.

*Scottish Towns.*—In the 16 largest Scottish towns, with an aggregate population estimated at nearly 2¼ million persons, the annual rate of mortality, which had increased from 14·9 to 18·2 in the three preceding weeks, further rose to 19·4 per 1000. The 443 deaths in Glasgow corresponded to an annual rate of 21·0 per 1000, and included 34 from whooping-cough, 19 from influenza, 4 from infantile diarrhœa, 2 from diphtheria, and 1 from scarlet fever. The 172 deaths in Edinburgh were equal to a rate of 20·1 per 1000, and included 5 each from diphtheria and influenza, 4 from measles, 2 from whooping-cough, and 1 each from scarlet fever and infantile diarrhœa.

*Irish Towns.*—The 147 deaths in Dublin corresponded to an annual rate of 18·1, against 18·2 per 1000 in the previous week, and included 3 from infantile diarrhœa and 1 each from enteric fever, whooping-cough, and diphtheria. The 154 deaths in Belfast were equal to a rate of 19·1 per 1000, and included 19 from whooping-cough, 2 from diphtheria, and 1 each from enteric fever, measles, and infantile diarrhœa.

# Obituary.

## E. C. LOMAS, C.B., D.S.O., M.B. VICT., F.R.C.S. EDIN.,

SURGEON-CAPTAIN, R.N.

THE death of Surgeon-Captain E. C. Lomas, though not unexpected by those who knew the nature of his distressing illness, recalls the loss to the Naval Medical Service thus prematurely caused by his retirement in 1919. Born in December, 1864, and educated at Owens College, Manchester, he entered the Naval Medical Service in 1891, was awarded the D.S.O. for his work on the Ladysmith Relief Column, and was promoted to the rank of Staff-Surgeon, R.N. He had a unique experience in hospital ships. Before the war he was the senior medical officer of the *Maine*, the only hospital ship in commission, which was wrecked, in his absence on urgent family affairs, in the first half of 1914; he was also senior medical officer of H.M.H.S. *Rohilla*, totally wrecked late in 1914, and then subjected himself to much exposure; he was next in medical charge of H.M.H.S. *Garth Castle*, and in 1916 was made C.B. (Military) in recognition of his war services. In October, 1916, he organised and opened the Royal Naval Hospital at Granton, near Edinburgh. Here he did remarkably good work, his organising ability, his devotion to laborious detail, and his kindly tact being responsible for the efficiency, success, and happy spirit characteristic of the hospital. It is sad that a career of such successful achievement has been terminated before its full course has run.

## PHINEAS SIMON ABRAHAM, M.D.T.C.D., F.R.C.S.I.,

CONSULTING DERMATOLOGIST TO THE WEST LONDON HOSPITAL AND MEDICAL COLLEGE.

Dr. Phineas Abraham, who died on Feb. 23rd at the age of 74, was a dermatologist of note. He was born at Falmouth, Jamaica, was educated at University School and College, London, at Trinity College and the Royal College of Science, Dublin, at the École de Médecine, Paris, and at Clausthal. He was scholar and exhibitioner at St. Bartholomew's Hospital, and won many other distinctions in his undergraduate career. His early experience was varied. Working first as a mining and chemical engineer, he became assistant in the Natural History Department of the British Museum, and in 1879 was appointed curator of the Museum of the Royal College of Surgeons in Ireland, where, after taking the Fellowship, he was appointed a member of the Court of Examiners. On graduating in medicine in 1886 he obtained the lectureship in physiology and histology at the Westminster Hospital Medical School and decided to specialise in diseases of the skin. First clinical assistant, then surgeon to the Hospital for Diseases of the Skin, Blackfriars, subsequently he was selected as medical secretary to the National Leprosy Fund and later became dermatologist to the West London Hospital. In 1910 he presided over the Dermatological Section of the B.M.A. annual meeting in London and he occupied for some years the chair of the West London Medico-Chirurgical Society and of the New London Dermatological Society. Dr. Abraham's knowledge of leprosy was nearly unique; he edited the Journal of the Leprosy Investigation Committee, and contributed articles thereon to Hillis's "Leprosy in British Guiana," to Allbutt's "System of Medicine," and to "A System of Syphilis." His dermatological writings are confined to the proceedings of several societies, but his translations of Unna have enjoyed wide circulation.

A friend of 30 years' standing writes of him: "A sound and successful clinician, Abraham *cured* his patients, and was not afraid to use the word, sometimes, I fear, to the annoyance of brother specialists. He was a tremendous worker, and spared no pains either in his laboratory or with his patients. Once during the war he spent nearly nine hours (with a short interval for lunch) over a bad case of diffused persistent acne, dealing with some hundreds of 'abscesses' individually with the happiest result to his patient, a young officer who had been sent home as incurable. He was one of the oldest and most loyal members of the Savage Club, many of whom have cause to be grateful to him for kindness both personal and professional, for he would accept no fee from a 'Savage.' An ardent Mason also and a Bohemian of the best type, his closest friends were to be found among artists of all kinds—actors, painters, sculptors, musicians, and journalists. With all these interests he was a devoted husband, father, and brother, for he lived for his family, and sympathy will be specially felt for his sister Ella, who devoted the whole of her life to him."

# The Services.

## ROYAL NAVAL MEDICAL SERVICE.

Surg. Cmdr. H. Clift is placed on Retired List at own request, with rank of Surgeon Captain.

Lieut. D. W. Granet is transferred to Emergency List.

Surg. Cmdr. F. E. Bolton and Surg. Lieut.-Cmdr. G. L. Ritchie to *Southampton*; Surg. Lieut. J. F. M. Campbell to *Victory*.

## ROYAL ARMY MEDICAL CORPS.

Major P. J. Marett retires, receiving a gratuity, and is granted the rank of Lieutenant-Colonel.

To be temporary Captains: E. G. S. Hall (late Captain, Spec. Res.) and R. Stephens (late temporary Captain).

Lieut. J. F. P. Gallagher resigns his commission.

Officers relinquishing their commissions: Temp. Major G. W. Beresford (retains the rank of Major). Temp. Capt. (acting Major) J. B. Butler (granted the rank of Major). Temporary Captains retaining the rank of Captain: I. Ridge-Jones, Z. A. Green, E. G. M. Gilchrist, W. Kirk, and H. H. McClelland. Temp. Hon. Capt. M. Bronk (retains the honorary rank of Captain). Temp. Lieut. J. A. B. Sim.

### TERRITORIAL FORCE.

Capt. W. D. Carruthers, from 1st London (City of London) Sanitary Company, to be Captain.

Capt. B. J. Alcock resigns his commission and is granted the rank of Major.

Capts. W. G. Cook and L. T. Whelan resign their commissions and retain the rank of Captain.

## INDIA AND THE INDIAN MEDICAL SERVICE.

Col. J. B. Smith to be Major-General.

The King has approved the retirement of Lieut.-Cols. W. W. Clemesha and C. C. S. Barry.

DONATIONS AND BEQUESTS.—Mr. Robert Francis Samuels, of Shaw-street, Liverpool, who has left property of the value of £11,346 net, has bequeathed £1500 to the University of Liverpool for three scholarships in medicine, surgery, and obstetrics and gynæcology; £200 to the Liverpool Royal Infirmary; £100 to the Queen Victoria Nursing Association; £200 to the Hospital for Women, Liverpool; £200 to the David Lewis Northern Hospital; £200 to the Liverpool Southern Hospital; and £200 to the Stanley Hospital, Liverpool. The residue is left to the executors for such persons, objects, or institutions as they may select.—Mr. Arthur Massingham, of Hove, Brighton, has left £100 to the Brighton, Hove, and Preston Dispensary; and £100 to the East Dereham Nurses' Home.—Mr. Henry Rutson, of Northallerton, has bequeathed £1000 to the Rutson Hospital, Northallerton, and £1000 to the York County Hospital.

# Correspondence.

"Audi alteram partem."

## VITAMINES AND COMMON SENSE.

*To the Editor of* THE LANCET.

SIR,—I am not one likely to underestimate the importance of the discovery of vitamines or "accessory food substances." The subject is one of such vital interest to the community that its immediate application to the problem of food has been at once grasped not only by the medical profession but by the public at large. Even *Punch* has published a pleasant skit upon the subject. This popularity is not without its dangers, especially among those whose physiological knowledge is so scanty that they are apt to run the idea to death. The introduction of a new and taking term and all that it connotes is frequently the cause of a great deal of loose talk and reasoning. This certainly followed when the word hormone was coined, and Professor Cathcart, in his recently published book on the "Physiology of Protein Metabolism," when speaking of the vitamines, says:

"There is at present a tendency to draw conclusions in a haphazard way, and attempts are being made to convert a valuable and interesting field of research into a happy hunting ground for the charlatan and the manufacturer of proprietary remedies."

May I expand this theme a little? The now well-known analogy which Professor F. G. Hopkins was the first to use, between the building of a wooden hut and the building of our body, comes in very handy here. The hut is built of planks, but the planks alone without nails are useless. The body is built of food materials, but the presence of a small amount of the vitamines (the nails) is indispensable. But who would dream of building a wooden house with nails only? Yet this is just the way some people are at present speaking; so impressed are they with the indispensability of the vitamines that they seem to have forgotten that the essential food principles (proteins, fats, carbohydrates, salts, &c.) are necessary also. I have, for example, heard of teachers of household science who know that the antiscorbutic vitamine is the one to which heat is most detrimental, advising their pupils to eat raw cabbage in preference to boiled vegetables. They would no doubt get more vitamine, but what about the starch and other constituents of the plant material? A great desideratum in the further exploration of the vitamines is, as Miss Harriette Chick pointed out some time ago, the employment of trustworthy quantitative methods. So far as such methods at present go, they all show that very minute amounts of the various vitamines suffice. In Professor Hopkins's pioneer work he succeeded in converting a useless diet compounded of pure proteins, fats, &c., into a useful and efficient one by the simple addition of 2 or 3 c.cm. of milk per diem. Boiling a potato or a cabbage for many hours will, in time, succeed in destroying all its vitamine, but who is there who wastes coal or gas in this way? Before and since the discovery of vitamines people have thrived upon cooked food, and there is no evidence to show that they were any the worse or suffered from scurvy or other deficiency diseases. Some of the vitamine evidently has escaped the destructive action of the heat which has been applied at a reasonable temperature or for a reasonable time. That which remains is evidently sufficient in all ordinary conditions. Common sense must be blended with the acquirement of physiological wisdom.

It is, however, in relation to milk that the question appears to be most urgent. Colonel R. J. Blackham, in a recent article in THE LANCET,[1] draws attention to it, and shows that in addition to confusion between the three known vitamines there is, even in relation to the antiscorbutic vitamine, the one to which heat is most inimical, considerable difference of opinion as to how much of it is destroyed at high temperatures; the balance of evidence is in favour of the view that this vitamine does not entirely disappear when the milk is raised to the boiling temperature. Does not this also coincide with experience? The use of heated milk, of boiled milk puddings, and the like, is no new departure. Are we in consequence afflicted to any great extent with scurvy or even with infantile scurvy?

The whole subject of pure milk is one very near to my heart. The importance of milk straight from the mammary gland of the infant's mother is a truism, but so long as mothers cannot or will not suckle their children, one has to fall back on the best substitute, in this country the milk of the cow. Here again it should be absolutely fresh and pure (suitably diluted of course), and not sophisticated either by addition of preservatives or by subtraction of one or other of its ingredients. But in the present state of legislation this ideal condition is difficult to realise. Some measure of protection against disease germs carried in the milk must be adopted, and the simplest precaution of all is that known as pasteurisation. I am quite aware that the quantity of the antirachitic factor (vitamine C) in milk is not very great, and that its entire removal by the drastic agencies employed in the manufacture of some dried milks is followed by outbreaks of infantile scurvy. Although I am open to conviction that the repeated heating of milk is open to the same objection, I cannot see that the simple process of pasteurisation is the danger that some extremists allege it to be. Better to run the risk of some lessening of the vitamine, for probably enough will be left to make it still efficacious antiscorbutically, than to run the much more serious risk of conveying by the milk the germs of fatal disease. Again, it is necessary to blend common sense derived from experience with the application of new-found facts, however important they may be.—I am, Sir, yours faithfully,

W. D. HALLIBURTON.

King's College, London, Feb. 24th, 1921.

[1] THE LANCET, 1920, ii., 1139.

## DUST IN EXPIRED AIR.

*To the Editor of* THE LANCET.

SIR,—The efficacy of the air passages as a trap for the removal of suspended matter in the air has been generally assumed to be very high. Tyndall is quoted as stating that expired air was optically pure, and, generally speaking, the assumption is made that air entering the lungs through the nose is purified from all suspended matter before it reaches the deeper parts of the lungs.

Having some doubts as to the truth of this assumption I made a few experiments to ascertain what the facts of the case were. Using the standard instrument described in the third report of the Advisory Committee on Atmospheric Pollution[1] I tested, on Nov. 17th last, a sample of air during a slight smoke haze in London. The air was found to contain approximately 1·92 mg. per cubic metre. I then filled a small rubber balloon with ordinary tidal expired air, taking care that the balloon was washed out by filling with expired air and emptying several times before testing. It was then blown up with air breathed in through the nose as in ordinary respiration, the balloon was fixed on the filter and a record obtained from the contained expired air. This was found to contain 1·28 mg. per cubic metre. Thus, in ordinary breathing the expired air contained about 70 per cent. of the suspended impurity which entered during inspiration. Doubtless, some of the suspended matter in the expired air was deposited on the walls of the balloon, but this would be a very small percentage of the total and would not invalidate the general results.

A similar experiment was then made, but in this case instead of "tidal" air, "reserve" air was used; the balloon was thoroughly washed out with "reserve" air and then filled after the end of a long inspiration, the air in each case being drawn in through the nose. The balloon was attached to the instrument and a record obtained which showed that the "reserve" air contained about 60 per cent. of the dust in the inspired air.

[1] Supplement to THE LANCET, March 23rd, 1918.

In order to check these observations I used an apparatus by means of which a very small jet of air could be blown upon a microscope slip; the jet was about 1/100 in. in diameter and impinged upon the slide at a distance of about 1/16 in. The result of causing such a jet of air to strike the slide is that a certain proportion of the suspended particles strike and adhere to the slide, so that a few cubic centimetres of ordinary London air directed against the slide are sufficient to produce a black spot, quite visible to the naked eye.

Using this instrument I repeated the observations, both with expired "tidal" air and with expired "reserve" air, taking all precautions to avoid fallacies in the experiment. In each case from the expired air I obtained a black deposit upon the slide. A sample of ordinary London air projected against the slide was examined microscopically and it was found that the particles were all black and varied in diameter between 1/100,000 and 1/20,000 of an inch. Slides obtained from expired air were also examined and the deposit was found to consist of similar black particles of similar dimensions.

It seems certain, therefore, that the suspended matter in the London air is not entirely removed by the action of the respiratory passages, but only about 30 per cent. is so removed. I am, Sir, yours faithfully,

Victoria-street, S.W., Feb. 22nd, 1921. J. S. OWENS.

## PSEUDO-COXALGIA.

*To the Editor of* THE LANCET.

SIR,—I confess to having been rather puzzled about the treatment of pseudo-coxalgia, and I would like to make one or two remarks à propos of Mr. H. A. T. Fairbank's paper (THE LANCET, Jan. 1st), and Sir Henry Gauvain's letter (Feb. 19th).

One of my earliest cases of this condition was that of a boy who presented typical signs on both sides—the skiagrams showing characteristic changes in the head of each femur. By my direction he was kept recumbent for several months with weight extension on the legs, and, by way of exercise, he had massage and movements daily. Eventually he recovered with no deformity and perfect movements of the hips in all directions—the skiagrams now showing complete regeneration of the head of the femur on both sides. This is what I understand by "recovery" in pseudo-coxalgia. I have since been told by various kind friends and colleagues that my treatment was, to say the least of it, superfluous; that it is quite unnecessary to keep these cases off their feet, or, indeed, to treat them at all; because they all get well without treatment. Yet, on at least three occasions recently I have been shown skiagrams of "the late results of pseudo-coxalgia." These all showed a very ugly deformity of the hip. The head of the femur was mushroomed and grossly deformed, and there were shortening and limitation of movement at the hip-joint; in fact, obvious disability.

So when I read that "the progress of the case is always towards recovery"; that "most writers agree that treatment, or entire absence of treatment, has little, if any, effect on the ultimate result"; and that "finally there may be some mushrooming of the head of the femur"; I am tempted to ask what is meant by "recovery" in this condition. Sir Henry Gauvain points out that these cases do not die, "nor is permanent disability, other than slight shortening and limitation of abduction, to be anticipated." But neither do cases of scoliosis die, yet we should hardly be justified in saying that a case of scoliosis has recovered because it happens to be alive after a few years.

During a recent visit to this country Professor Calvé remarked that treatment (of pseudo-coxalgia) is unnecessary, as they all get well without it, and he added, "Of course, they limp"—as though it was the most natural thing in the world that a child should grow up with a short limb, a limp, and limited movement at the hip-joint. Most orthopædic surgeons have seen a good many cases of this condition by now, but few of us have the opportunity of seeing any number of them grow up from childhood to adult age. It is very desirable that the end-results of untreated cases should be recorded. It is said that after a time "the ossification of the epiphysis returns to the normal, until at last the hemispherical shape of the ossific centre is restored." This may be so in some cases, but is it the rule, can it be relied upon in untreated cases? If not, how should these cases be treated? I know that weight may be taken off the hip-joint by a skilfully and accurately fitted calliper splint or a Hessing's splint. But I know, too, that there is a good deal of make-believe and self-deception in the common use of these splints especially in growing children. I question whether the calliper splint, as ordinarily used, is really efficient in preventing deformity of the head of the femur, and one would like to see recorded the end-results of cases treated by this method. Meanwhile, it would not be a bad plan to consult the parents of some of these children (especially in private practice) as to whether a little limp, a little shortening, and some limitation of movement at the hip, are really nothing to them. I strongly suspect that if any orthopædic surgeon had to treat a child of his own for pseudo-coxalgia he would take very good care that no weight came upon that child's hip-joint, and he would be very chary of trusting to the ordinary calliper splint until the head of the femur was well on the way back to normal.

I had almost been persuaded that my treatment of these cases was wrong, in fact, superfluous, when I saw the skiagrams of late results already mentioned. But I now require a good deal more evidence that treatment is useless before I abandon it. I realise, of course, that in hospital cases we may be driven by lack of accommodation to methods which are perhaps only second best. But we ought to be clear about what is really the best and, therefore, the proper treatment.

I am, Sir, yours faithfully,

A. S. BLUNDELL BANKART.

Harley-street, W., Feb. 23rd, 1921.

## THE BRITISH PHARMACEUTICAL INDUSTRY: AN APPEAL TO MEDICAL MEN.

*To the Editor of* THE LANCET.

SIR,—We, the undersigned old-established British houses, earnestly appeal to medical men of the British Empire to support British industry to the utmost of their power. This appeal has no political foundation. We wish simply to place before your readers a few facts for their most careful consideration:—

(1) In all fairness it should be realised that international trading is not on a reciprocal basis, that is to say, foreign chemicals and pharmaceutical preparations are admitted into this country, practically speaking, duty free, whilst goods exported from this country to countries abroad are subject to an exceedingly high ad valorem duty. One vast country we have in mind directly prohibits the import of pharmaceutical preparations of other countries, while other immense States do so indirectly by means of the high duty already referred to.

(2) It should be remembered that, although much has been done during the war and since in the direction of promulgating British chemical industry, a great amount of work has yet to be done to consolidate the fine chemical and allied industries at home, and an obvious point is that the factories in Germany are for the most part absolutely intact and she retains secrets which are the outcome of laborious, painstaking investigation.

(3) We desire to respectfully impress on your readers that we do not advertise to the public, nor "prescribe," nor in any way trespass on the rightful province of the medical practitioner; on the contrary, we rely on the position that the chemist, so far as the medical use of chemicals is concerned, is the handmaid of the medical man, and we might add, rather bluntly, we do not recommend foreign medical men and health resorts; why should the medical man recommend foreign pharmaceutical preparations?

(4) The scientific staffs in our laboratories welcome suggestions from medical men, and will carry out investigations to elucidate problems connected with chemistry, materia medica, and the like which may prove of assistance in the art of healing.

(5) We have in our employment men who have been through the hell of the recent war. We have also with us young pupils and apprentices who had never even heard the name of Lister and who knew nothing of his teaching until we taught them what he did for suffering humanity. These two types of men in our opinion, need every support, encouragement, and protection which the medical man can give.

We ask the doctor to demand British produce and, furthermore, convince himself that what is stated to be British *is* British, and by so doing enable us to give employment to more and yet more British workmen and to compete with foreign enterprise on the unequal footing above mentioned.

We are, Sir, yours faithfully,

JOHN BELL AND CROYDEN, LTD., Wigmore-street, W.; JOHN BELL, HILLS, AND LUCAS, LTD., Tower Bridge-road, S.E.; BRAND and Co., LTD., South Lambeth-road, S.E.; BLEASDALE, LTD., York; J. L. BULLOCK AND Co., Hanover-street, W.; BURGOYNE, BURBIDGES AND Co., LTD., East Ham; J. R. CAVE, LTD., Southport; COOPER LABORATORIES, Watford; CURTIS AND Co., Baker-street, W.; CUXSON, GERRARD, AND Co., LTD., Oldbury, Birmingham; DUNCAN, FLOCKHART AND Co., Edinburgh and London; GALE AND Co., Bouverie-street, E.C.; GALEN MANUFACTURING Co., LTD., New Cross-road, S.E.; GOODALL, BACKHOUSE AND Co., LEEDS; HANDFORD AND DAWSON, Harrogate; HARRINGTON BROS., LTD., City-road, E.C.; HODGKINSON, PRESTONS, AND KING, LTD., Bishopsgate, E.C.; JEYES' SANITARY COMPOUNDS Co., Cannon-street, E.C.; THOS. KERFOOT AND Co., Bardsley Vale, Lancs.; H. AND T. KIRBY AND Co., LTD., Willesden; HOWARD LLOYD AND Co., LTD., Leicester; LOFTHOUSE AND SALTMER, Hull; W. MARTINDALE, London; MOTTERSHEAD AND Co., Manchester; G. T. W. NEWSHOLME, LTD., Sheffield; OPPENHEIMER, SON, AND Co., LTD., Queen Victoria-street, E.C.; PAINE AND Co., St. Neots, Hunts; PEAT PRODUCTS, LTD., Queenhithe, Upper Thames-street, E.C.; PECK AND SON, Cambridge; POTTER AND CLARKE, LTD., Artillery-lane, E.; PRIDEAUX, LTD., Motcombe, Dorset; RAIMES AND Co., York; RAIMES, CLARK, AND Co., LTD., Leith; F. ROGERS, Oxford-street, W.; RICHARDSON AND Co., Blackpool; JOHN RICHARDSON AND Co., LTD., Leicester; F. M. RIMMINGTON AND SONS, Bradford; SQUIRE AND SONS, LTD., Oxford-street, W.; STANDARD TABLET AND PILL Co., LTD., Hove; H. E. STEVENSON AND Co., LTD., London, S.E.; SYMES AND Co., LTD., Liverpool; TYPKE AND KING, LTD., Mitcham; THOS. TYRER AND Co., LTD., Stratford; WHIFFEN AND SONS, LTD., Battersea; WRIGHT, LAYMAN, AND UMNEY, LTD., Southwark-street, S.E.

March 1st, 1921.

## THE SEPARATION OF PRESCRIBING AND DISPENSING.

*To the Editor of* THE LANCET.

SIR,—In reply to the letter of Mr. J. O. Braithwaite in your issue of Feb. 26th, the Ministry of Health Committee of the Pharmaceutical Society admits, in its report which appeared in the *Pharmaceutical Journal* of May 15th, 1920, that the only statutory qualification in the dispensing of medicines is that held by the apothecary's assistant, also that the statutory qualification of the pharmacist for the dispensing of poisons applies only to open shops, and only to scheduled poisons. A hospital or institution cannot be held to be an open shop. If there is to be any separation of prescribing and dispensing the apothecary's assistant can justly claim priority to dispensing in any places other than open shops.

I should like to point out that in the orders governing the appointment of dispensers to many public hospitals, institutions, &c., the apothecary's assistant is equally eligible with the pharmacist, and in order of precedence appears before the pharmacist, and further, as a matter of fact he discharges his duties in these places to the entire satisfaction of those concerned. Mr. Braithwaite seems to have overlooked the fact that the business of a chemist and druggist has many things in common with the herbalist and grocer, and if such classification is necessary the pharmacist certainly has the prior claim.—I am, Sir, yours faithfully,

H. C. RICHARDS,
Hon. Secretary, Association of Certificated Dispensers.
Hathaway-road, Croydon, Feb. 27th, 1921.

## RACIAL TUBERCULOSIS SUSCEPTIBILITY.

*To the Editor of* THE LANCET.

SIR,—In an annotation in THE LANCET of Nov. 30th, 1920, figures are quoted from a paper by Professor S. Lyle Cummins, contrasting the rates for tuberculosis in the British Army with the much higher rate which prevailed amongst the men of the South African Labour Corps, and using these as an illustration of the susceptibility of primitive races to a new disease and their inability to withstand its attack. This use of the figures is not justifiable in regard to South African natives at all events. In a paper written in 1911, a précis of which appeared in THE LANCET of May 11th, 1912, I gave evidence to show that the great susceptibility of South African natives to pneumonia and tuberculosis was due to the great prevalence of a syphilitic taint in all native tribes in South Africa, and that they took these diseases in a virulent form. In a subsequent paper (THE LANCET, April 11th, 1914) it was shown that a similar susceptibility, in a somewhat less degree, applied to the white population also. The ancient and often-quoted example of the heavy mortality resulting in a "virgin soil" from such a disease as measles is easily understood by anyone who knows the habits of natives when suffering from any febrile disease without putting the onus therefor on the "virgin soil." as Professor Cummins seems to do.

I am, Sir, yours faithfully,

Clocolan, O.F.S., South Africa, Jan. 6th. B. G. BROCK.

## AS OTHERS SEE US.

*To the Editor of* THE LANCET.

SIR,—The letter with this title by Dr. Harry Roberts in THE LANCET of Feb. 26th has touched me in a marked degree. The author of "Chronicle of a Cornish Garden," a fellow-student of mine some 30 years ago, concentrated his early energies in the congenial air of a wide and wild part of England, only to remove later to the drab and depressing atmosphere of an East-end district. No wonder he unconsciously contrasts, in his mind, the almost undisguised worship of a simple and kindly country-folk with the more shrewd and critical audience of the town wage-earner. Perchance if he had practised first in the sordid surroundings of some vast city and then transferred his sphere of action to the free and open country his opinions might have been reversed, and he might even have thought the status of the general practitioner had risen rather than descended.

But there is great truth in his letter. The political reformer who dreams wonderful visions of an ideal organisation for both the public and the practitioner is usually just the man who has never had any personal experience of private practice. How many general practitioners, I would ask, represent our profession in Parliament? As is usual among this type of man, in his overflowing enthusiasm and concentration he does everything of which he can possibly think but "the one thing needful." The machinery is all most perfectly made, of the finest metal, intricate, beautiful and wonderful, but, alas, those little drops of oil, that are so essential for it to run smoothly and wisely, have been forgotten, and sooner or later it is doomed to be placed on the scrap-iron heap. The vital factor in the life of medical practice is the relationship between the doctor and his patient. You may organise veterinary surveillance for a flock of sheep or goats and they cannot demur. Human beings are different. They can and will demur. The panel kills or stifles that fine professional relationship which every self-respecting medical practitioner unconsciously seeks. The patient, instead of being an individual, becomes merely an integer. The democratic Briton, whoever he may be, will not tolerate this. He has to put up with it for a time, as there is nothing else to fall back upon, but eventually, I feel convinced, he will resist it to the uttermost.

I agree with Dr. Roberts that by far the vast number of practitioners are keenly alive to the Hippocratic oath, and by far the majority, under particularly adverse circumstances and often against tremendous odds, will maintain and dominate an almost intolerable position, rather than sink to the level of the mean and, may be, squalid surroundings in which they may be placed. Although not on the panel, 20 years ago I tasted the difficulties and position of a country "club-doctor." A certain number of club members take up an attitude that because you are a club-doctor you are unable or unwilling to do justice to them on account of the small fees paid. Their prejudice leads them to think they are not receiving the best attention and, in the case of a protracted illness they will sometimes call in another doctor who they imagine may render them greater

assistance, as they will be paid for their services by "piece-work." This, in many cases, is most disheartening for the club-doctor who is giving his best attention under, perhaps, difficult and adverse circumstances. What is he to do? He is in the grip of a relentless system over which he has no power to cope. And yet there are others. One, in particular, I remember, who after a long illness, from which he slowly recovered, told me: "I shall always respect you, Sir, for what you have done." This, from Dr. Roberts's view-point, was a success, though from a materialistic standpoint, no doubt, was a failure.

In practices such as Dr. Roberts appears to have it is a constant and continuous "casting of one's bread upon the waters," but I do believe if we are faithful to the highest ideals of our profession, we see it back again, even though it may be "after many days." One can only have unceasing admiration for those of our profession who are fighting to keep alive their spirit-instincts among an uncongenital society and in impossible surroundings. Are they not the very salt of our profession and are not these the men that have given to our profession in the past the splendid name it has won and will, we believe, carry it on unblemished to the end of all time?—I am, Sir, yours faithfully,

Crouch End-hill, N., Feb. 26th, 1921. T. WILSON PARRY.

## REFERRED PAIN.

*To the Editor of* THE LANCET.

SIR,—The time was ripe for the leading article on referred pain which appeared in your issue of Jan. 22nd, as is shown by the interest it has evoked. The rôle of a nerveless automatism in visceral action had been played out, and if a few actors still reluctantly withdraw from that deserted stage and with a silence with which positions once held are abandoned, the curtain is descending and the footlights on that play are growing dim. But all the bustle of an entertaining piece still animates the discussion of the parietal expression of visceral pain. The interest, moreover, in this matter is not only professional, for a long-suffering public, rendered valetudinarian, is regaled with this mystery even by the lay press, the *Times* being most obtrusive in its adulatory appreciation of the parietal interpretation of visceral pain. In due course, however, and with a like conclusion, the curtain will descend on this piece also, for the anatomical fates have decreed it, and they are, on the whole, more reliable prophets than either physiological or clinical vaticinators, although of the latter the clinical may, perhaps, be regarded as the more trustworthy.

The conclusion reached in your article is that viscera are capable of being the site to which pain is referred under certain circumstances, notwithstanding the well-known peculiarities of their sensibility. You, therefore, subscribe in this matter, and I think with more justice than is often the case, to the truth of the saying, *Securus judicat orbis terrarum*. That is, that the "man in the street" with nephritic colic or angina pectoris is aware that he is not suffering from a dermic or hypodermic neurosis, but from a deeper visceral pain. As you remarked in an editorial note on the letter of one of your correspondents (Feb. 6th), this chief point has been ignored by most of your correspondents, who appear to be more occupied with the existence and diagnostic value of the parietal and segmental tenderness which is, at times, the aftermath of an orginally deeper suffering.

The exception to these is your last correspondent, Sir Clifford Allbutt (Feb. 26th), who bases his views on the embryology and innervation of the serous surfaces or "inpacked" "skin" which forms the capsule of the viscera; hence, he demurs to Dr. A. F. Hurst's conclusion, that the viscera are themselves sensitive, given an "adequate stimulus." To accept Sir Clifford Allbutt's view would be to agree that, unless the investment of viscera be affected, there can be no visceral pain and that all intrascapular visceral innervation is motor in character or function. Even the acutely painful thrombus in a coronary artery hurts, according to him, because of a stretching of the pericardium, which he regards as ensuant. How does this conclusion agree with Cannon and Washburn's demonstration of the association of hunger-pains with gastric contraction? In this case the capsule is relieved of tension during the pain not stretched. The tension here is in the contracting muscle.[1] From clinical evidence it may be asserted with confidence that pain *during an attack*, whether of angina pectoris, acute appendicitis, nephritic or biliary colic, or any other visceral agony is *deep* and referred by the patient, as well as determinable by the physician, to be subparietal. The surface aftermath but proves that the circumstances which induce visceral pain reveal the existence of paths in the autonomic nervous system afferent to centres, spinal and cerebral, which are usually denied to exist except in very limited numbers. That the visceral nerves are mixed nerves may, however, be shown anatomically.

More than 20 years ago, when delivering the Morison lectures in Edinburgh, I showed that "the nerves which innervate the pia mater are anatomically similar to those which follow, twist round and end on vessels, and may occasionally be actually seen to take their departure from the nerve on the vessel." It will be admitted that if the vessel be a motor organ the pia mater certainly is not, and that its innervation therefore belongs to the sensory group, however modified from the somatic type of the same series. I may remark, in parenthesis, that the intracranial vessels were at that time regarded by physiologists as nerveless and muscular automata. They played, indeed, a leading part in the drama now withdrawn, to which I have already referred. I have also shown that the innervation of the coronary artery is submuscular as well as perimuscular—intravascular as well as extravascular—and that the mode of termination of visceral nerves, whether capsular or intracapsular, is the same.[2]

My anatomical and clinical experience, therefore, has strengthened me in the position I have long maintained and published, on what have appeared to me to be sufficient grounds—namely, that the site of visceral pain may be not only capsular or peri-organic but also intracapsular and organic. With this view the leading article already referred to seems to be in agreement, although it does not appear to show acquaintance with my work.—I am, Sir, yours faithfully,

ALEXANDER BLACKHALL-MORISON.

London, Feb. 27th, 1921.

## JOHN HOWARD McFADDEN.

*To the Editor of* THE LANCET.

SIR,—A tribute is due to the memory of John Howard McFadden, who died at Philadelphia on Feb. 16th, aged 70. He was an unostentatious philanthropist who helped to make progress. Although he was attacking a problem which he could scarcely hope to solve, he cheerfully started and entirely supported for six years a cancer research organisation at the Lister Institute of Preventive Medicine in London. He gave carte blanche, and later on extended the investigations to other branches of medical research—for example, sending expeditions to investigate pellagra in the United States. The researches made in association with the Home Office into the cause of industrial cancer at briquette works are to the credit of Mr. McFadden, who received the thanks of the Secretary of State for what he called his "spade-work," but he never courted publicity. He was a remarkable personality. Equally known in the great cities of Europe and America, he was a sort of "Mr. Potter of Texas," with the sombrero replaced by a silk hat and the revolver by kindness. A cotton magnate, he enjoyed to act the part of an American millionaire. He was a daring speculator, being usually "bullish" when others were "bears," and on one occasion at least he averted a panic in the Cotton Exchange in New York by his sheer force of personality. He was a judge of pictures, and collected a fine gallery of eighteenth-century English art. By medical men he will be remembered for, among his many activities, his practical interest in medical research.

I am, Sir, yours faithfully,

Curzon-street, W., Feb. 26th, 1921. H. C. ROSS.

[1] Amer. Jour. of Phys., vol. xxix., p. 441.
[2] The Nervous System and Visceral Disease, Edinburgh, 1899.

# Parliamentary Intelligence.

## HOUSE OF COMMONS.

### WEDNESDAY, FEB. 23RD.

*Indian Medical Service and Cadre Acceleration.*

Mr. RUPERT GWYNNE asked the Secretary for India whether he was aware that the Indian Medical Service had received neither the benefits of the accelerated cadre promotion granted in the British Army and the Royal Army Medical Corps or the accelerated time promotion granted in the Indian Army; whether the reason given for the exclusion of the Indian Medical Service from the British Army and Royal Army Medical Corps cadre acceleration to lieutenant-colonelcy was because the Indian Army did not have it, and from the Indian Army time scale acceleration to field rank because the Royal Army Medical Corps did not have it; and what was the object of placing officers of the Indian Medical Service in this disadvantageous position.—Mr. MONTAGU replied: I find some difficulty in understanding the honourable Member's question. Perhaps he could furnish me with particulars of any specific case on which it is based. Meanwhile I can assure him that there has been no discrimination against the Indian Medical Service.

*Ministry of Health Bill.*

Mr. ORMSBY-GORE asked the Minister of Health whether he proposed to reintroduce the Ministry of Health (Miscellaneous Provisions) Bill in the form in which it was rejected by the House of Lords last session; and, if so, when.—Dr. ADDISON replied: I propose to introduce as a separate Bill the housing portion of the Bill of last session. I am not at present in a position to state the course that will be taken with regard to the other portions of the Bill.

*Local Medical Officers' Salaries.*

Mr. MOSLEY asked the Minister of Health whether it was the practice of the Ministry of Health to abrogate agreements regarding salary arrived at between local councils and their medical advisers and to raise these salaries, without consulting in any way the ratepayers of the district.—Dr. ADDISON replied: The answer is in the negative.

Dr. M'DONALD asked the Minister of Health if, in order to obtain true health statistics of the nation, he purposed ultimately issuing record cards to the whole population and not, as at present foreshadowed, limiting the issue to insured persons.—Dr. ADDISON replied: I do not think that it is practicable to give effect to the honourable Member's suggestion.

*Spahlinger Cure for Consumption.*

Mr. LYNN asked the Minister of Health whether he was in a position to give any information regarding the Spahlinger cure for consumption.—Dr. ADDISON replied: I have made full inquiries regarding this supposed remedy for tuberculosis, but it is clear that much further investigation and experience will be necessary before accepting the claims made for it. It appears that as long ago as 1913–14 the serum in question was prepared. It was tried by several hospital physicians, but there is not yet sufficient evidence of its therapeutic value, nor have the trials of it been sufficiently extensive to justify any definite and reliable conclusions. I understand that a report on the method of treatment has been presented to the French Academy of Science, and if and when supplies of the serum become available for investigation in this country I shall be prepared at once to facilitate and coöperate in an exhaustive examination of its efficacy both from laboratory and clinical points of view. I understand that a supply of the serum is not likely to be available for this purpose for some months, and that on account of the secrecy maintained as to its constitution and method of preparation it has hitherto been found impracticable for the recognised research laboratories in this country to investigate its properties and effects.

*Infectious Cases in Bedwellty Area.*

Mr. CHARLES EDWARDS asked the Minister of Health whether the medical officer of health for the Bedwellty area reported nine cases of scarlet fever and one case of diphtheria for the week ending Jan. 22nd, 1921; if so, why were these cases not reported in the weekly summary of returns of certain specified infectious diseases; whether he was aware that for two months Bedwellty had been marked "Nil" in the Report, which was not in agreement with the returns sent in by the medical officer.—Dr. ADDISON replied: The honourable Member is under a misapprehension. The cases in question were not included in the weekly summary because the returns of these cases were not received from the medical officer of health in time for their inclusion. The district in question was not, however, marked "Nil" in the summaries, but as "Returns not received." The figures thus omitted from the weekly summaries were, according to practice, included in the monthly supplementary statements for the periods concerned.

*Charges to Panel Patients.*

Mr. ROBERT YOUNG asked the Minister of Health whether his attention had been drawn to the case at Old-street police-court where it was elicited that a panel patient had to pay 2*s.* 6*d.* for each visit she made to the doctor because she could not afford to leave her work to attend at the surgery during the hours fixed for panel patients, and what steps he proposed to take in this and similar cases.—Dr. ADDISON replied: My attention has been called to this case which I learn is under investigation by the London Insurance Committee. In all cases where complaint is made that a doctor has improperly charged a fee to an insured person the matter is referred for investigation by the Insurance Committee to the appropriate tribunal set up under the Regulations for dealing with complaints with a view to the necessary disciplinary action if the complaint is established.

*Ministry of Health Secretary's Salary.*

Sir THOMAS POLSON asked the Chancellor of the Exchequer whether the salary of the first secretary of the Ministry of Health had recently been increased from £2000 to £3000 per annum, and that of the second secretary from £1700 to £2200; and if he would state on what grounds these increases had been made.—Mr. CHAMBERLAIN replied: The salary of the first secretary to the Ministry of Health has been increased from £2000 plus £750 bonus to £3000 plus £500 bonus, and that of the second secretary from £1700 plus £750 bonus to £2200 plus £500 bonus in pursuance of the recommendations of a Committee appointed by the Government to advise them as to the emoluments which should attach to the principal permanent posts in the Civil Service. My right honourable friend the Member for Paisley (Mr. Asquith) was good enough to act as chairman of the Committee.

*Military Service and Attributability.*

Mr. T. A. LEWIS asked the Minister of Pensions whether the Ministry could see its way to lay down the principle that any man who, entering the army in sound health, was discharged in impaired health should have his invalidity automatically attributed to military service.—Mr. IAN MACPHERSON replied: I am not prepared to accept this suggestion. Each case is considered on its merits in the light of all available evidence, and if a claim to pension is rejected by my department on the ground that the disability is not due to service, the man has a right of appeal to an independent tribunal.

*Coroners (Remuneration) Bill.*

Sir T. BRAMSDON introduced a Bill to amend the law relating to the remuneration of coroners. The Bill was read a first time.

### THURSDAY, FEB. 24TH.

*Pension Appeals to House of Lords Tribunal.*

Mr. JOHN GUEST asked the Minister of Pensions if he would state how many cases of appeal against pension decisions by discharged Service men were dealt with by the House of Lords Appeal Tribunal during the year ending Dec. 31st, 1920; if it was the practice when such appeals were heard for a discharged man to sit on the tribunal; if it was not the practice, how many cases were dealt with during the above period without an ex-Service man on the tribunal; if he would state how many cases of appeal by ex-officers against pensions decisions were dealt with by the House of Lords Appeal Tribunal during the same period; if it was the practice for an officer to sit on the tribunal; and, if it was not, how many cases were heard during the above period without an officer on the tribunal.—Major TRYON (Parliamentary Secretary to the Ministry of Pensions) replied: I am informed that during the year 1920 the Pensions Appeal Tribunals heard and disposed of 344 appeals from officers and 13,537 from men. The answer to the second part of both these questions is in the affirmative. It is, in fact, not merely the practice, but a statutory requirement.

*Ministry of Pensions and Tuberculous Ex-Service Men.*

Dr. M'DONALD asked the Minister of Pensions if he would reconsider his attitude towards ex-Service men who had been certified as suffering from tuberculosis shortly after their discharge from the army on account of being unfit for further military service and now considered ineligible for pension; whether he was aware that, while the health of some men was improved by service, the health of others was deteriorated, thus paving the way to tuberculosis; and whether cases of this character would be dealt with more sympathetically, notwithstanding the decision of any medical board examining these men months after their discharge.—Major TRYON replied: My right honourable friend is not aware that claims to pension on the ground of tuberculosis are unsympathetically considered. If the tuberculosis develops within a short period of discharge the disablement is generally admitted to be either attributable to

or aggravated by service, and even where the disease does not develop until after a considerable period the circumstances of the man's military service and of its effect on his health are carefully examined. If the Ministry are unable to accept his claim the man is advised of his right of appeal to an independent tribunal.

*Disabled Men and Form M.P.M.D.S. 29.*

Lieutenant-Colonel WALTER GUINNESS asked the Minister of Pensions whether he was aware that great difficulty was caused to men drawing allowances when under treatment at home but unable to work in finding persons in responsible positions to witness the form M.P.M.D.S. 29, as the witnesses almost invariably understood that in signing the document they were vouching for the accuracy of the man's statement; and whether, in view of the undertaking on the form that the pensioner will at once notify the local committee if he undertook paid work, the Ministry of Pensions would limit the obligation to complete the form every week to those men who were able to work, but who were required on medical grounds to abstain from using their earning capacity, and that in the case of those where the medical certificate showed total incapacity for work the form should only be completed each time the man came up for review by the medical referee.—Major TRYON replied: The form M.P.M.D.S. 29, to which my honourable and gallant friend refers, is now under revision, and consideration is being given to the difficulty stated in this question.

*Pensions Appeal Delays in London Region.*

Lieutenant-Colonel Sir FREDERICK HALL asked the Minister of Pensions if he was aware that there was delay in appellants having their cases heard before an appeal tribunal, particularly in the London region; whether recommendations had been made for considerable increase in the number of these courts; if he could give any reason why there had been such delay in recommendations being carried out; and what steps it was intended to take to remedy this unsatisfactory state of affairs.—Major TRYON replied: I am informed that two extra courts are now sitting and that two more will begin sitting next Monday. The question of still further increasing the number of courts is now under the consideration of the Lord Chancellor.

Captain Sir DOUGLAS HALL asked the Minister of Health if, as the result of an earlier system of record cards of insured patients, the cards proved to be useless and were practically unexamined, large quantities of cards being sold as waste paper; and did he anticipate a better fate for the new cards.—Dr. ADDISON replied: Under the earlier system of record the cards were by no means useless and were destroyed only after having served their purpose, but their value for clinical purposes was greatly impaired because at the end of every year they were surrendered and the particulars as to the names of patients and their illnesses separated. It was because of this inherent defect in the old cards that the new records have been designed by a committee mainly composed of members of the medical profession who gave fuller place (and in my view rightly so) to the clinical objects of the record, and so designed a form which might serve as a continuous record of insured persons' illnesses. These records will undoubtedly be of great value, and I may add that the keeping of them gives insurance practitioners less work than the old records.

*Dangerous Drugs Act Regulations.*

Mr. HANNA asked the Minister of Health whether he had received numerous resolutions and letters of protest from associations of and individual chemists in the north of Ireland against certain parts of the regulations under the Dangerous Drugs Act; and, if so, would he say what action he proposed to take in the matter.—Mr. SHORTT (Home Secretary) replied: A number of representations have been received from chemists and associations in the north of Ireland. As regards the action which is being taken in the matter I would refer the honourable Member to previous replies on the subject.

Mr. CLOUGH asked the Secretary for the Home Department if he would state what was the result of the submission of the preliminary draft of the regulations under the Dangerous Drugs Act by the Home Office, as stated by the Under Secretary of State in the press on Feb. 9th, to the Pharmaceutical Society of Great Britain, the Pharmaceutical Society of Ireland, the General Medical Council, the Royal College of Physicians, and the Royal College of Surgeons; whether, prior to the publication of the draft regulations by the Home Office, any and, if so, which of those bodies had indicated their approval of the draft; and whether any and, if so, which had submitted objections.—Mr. SHORTT replied: The result of the communication of the preliminary draft in November last to the bodies mentioned for their observations was as follows. The Royal College of Physicians and Royal College of Surgeons considered the draft satisfactory and offered no observations, except that the Royal College of Physicians thought the minimum limit in the case of cocaine (which is fixed by the Act and cannot be altered by regulation) too high. The General Medical Council also approved the regulations, but asked that the directors of research laboratories might be included among the classes of persons who are authorised by the regulations themselves to be in possession of the drugs. The Pharmaceutical Society of Great Britain replied by a letter maintaining that the proposal in the regulations to prohibit the sale of the drugs to the public except on a medical prescription was ultra vires of the Act, and proposing that before going on with the regulations the Government should appoint a committee to consider the desirability of separating the functions of prescribing and dispensing. The reply of the Pharmaceutical Society for Ireland, which was not received till after the draft had been published, submitted objections on various points.

*Admiralty Surgeons' Fees.*

Captain ELLIOT asked the First Lord of the Admiralty if he would state when it was intended to revise the scale of fees paid by the Admiralty to surgeons and agents (Article 21, Clause 3), seeing that these fees were below those paid by other departments and had not been revised for 35 years, notwithstanding the enormous increase in the cost of living.—Sir JAMES CRAIG (Parliamentary Secretary to the Admiralty) replied: A revised scale of fees is now under consideration, and it is hoped that a decision may be reached and promulgated very shortly.

*Industrial Fatigue Research Board.*

Captain ELLIOT asked the Lord President of the Council whether the Treasury had ordered the Industrial Fatigue Research Board to be wound up by March; whether this body had recently issued a most valuable report on conditions in the steel-making industry, indicating methods for securing greater efficiency in production; whether it was the case that the dissolution of this body now would mean the loss of all the work and money spent in getting it to the present point when it was beginning to show a return; and whether, in view of these facts, he would take steps to prevent the total destruction of this Board.—Dr. ADDISON replied: The matter referred to is now under consideration, and if my honourable friend will repeat his question next week I hope to be able to give him a definite reply. The Government entirely shares his view as to the report in question.

FRIDAY, FEB. 25TH.

*Food Values.*

Captain ELLIOT asked the Minister of Health whether he would consider whether information regarding nutritious and economical foods could be circulated to local authorities, educational authorities, and the press, in view of the present distress and the great amount of manufactured and semi-manufactured foods consumed by the people of this country.—Dr. ADDISON replied: I am considering whether it would be practicable to issue a pamphlet containing information on the lines suggested by the honourable Member. As he is aware, it is difficult to make any general statements with regard to the values of food which are not liable to be misconstrued. I am having certain researches conducted on the subject in collaboration with the Medical Research Council.

*Dangerous Drugs Act Regulations.*

Lieutenant-Colonel WALTER GUINNESS asked the Secretary for the Home Department whether the draft regulations under the Dangerous Drugs Act provided that no prescription given by a veterinary surgeon could be dispensed; and what provisions were made in the regulations enabling farmers and stock breeders to be in possession of the drugs for the purposes of administering them to their stock.—Mr. SHORTT replied: The draft regulations provide generally for the issue of licences or authorisations in proper cases and I propose to insert words in the regulations expressly authorising the supply of the drugs for the purposes of the treatment of animals on the prescription of a veterinary surgeon. Further details as to the application of the regulations to agriculture are under consideration in consultation with the representatives of the agricultural interests.

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COLSTON UNIVERSITY RESEARCH SOCIETY.—At a recent meeting of the University Colston Society Committee it was decided to alter the title of the society to Colston University Research Society. The society was founded in 1899, and on the establishment of the University of Bristol the decision was made to apply the funds of the society to the support of research work within the University. The new title has been adopted in order to make it clear that the society exists to support research work within the University and that the funds are devoted entirely to facilitate and extend this work. The annual dinner of the society is fixed for May 23rd. The president this year is Alderman Frank Sheppard, and Sir William Bragg, F.R.S., Quain professor of physics of the University of London, will be the guest of the society.

# Medical News.

ROYAL INSTITUTION OF GREAT BRITAIN.—The Friday evening discourse on March 11th will be delivered at 9 o'clock by Dr. John Freeman, on Medical Idiosyncrasies. A general meeting will be held at 5 P.M. on Monday, March 7th.

ROYAL SOCIETY OF ARTS.—Three Cantor lectures will be delivered on March 7th, 14th, and 21st, at 8 P.M., at the house of the society, John-street, Adelphi, London, W.C., by Major G. W. C. Kaye, D.Sc. The subject will be X Rays and their Industrial Applications.

HARVEIAN SOCIETY.—The next meeting will be held on Thursday, March 17th, at 8.30 P.M., at the Town Hall, Paddington Green, London, W., when the Harveian lecture on the Thymus Gland in Everyday Life will be delivered by Dr. Leonard Williams.

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION.—A conference convened by the Medical Officers of Schools Association will be held on Friday, March 18th, at 4.30 P.M., at the rooms of the Medical Society, 11, Chandos-street, Cavendish-square, London, W., on Punishments in the Schools.

HUNTERIAN SOCIETY.—The next meeting of this society will be held at Sion College, Embankment, London, E.C., on Wednesday, March 9th, at 9 P.M. Papers will be read by Mr. H. Tyrrell Gray on Obscure Intestinal Colic, and by Dr. A. R. Friel on the Use of the Continuous Electric Current in Treatment. All members of the medical profession are invited to attend.

AT a meeting of the Central Council of the Combined Universities Conservative and Unionist Association Mr. Sidney C. Lawrence, M.B., Ch.B. Birm., medical officer of health for Edmonton, was adopted as one of the prospective candidates for the Combined English University Constituency at the next General Election.

A MEMORIAL TO SIR HERMANN WEBER.—A tract of land near Woldingham, on the Surrey Downs, has been presented to the National Trust for public enjoyment in memory of the late Sir Hermann Weber by one of his daughters. The gift is specially appropriate, inasmuch as Sir Hermann Weber was himself a great walker and a "lover of fresh breezes and wide horizons," and this epitaph is inscribed on a seat of marble and teak placed in the woods.

PRINCESS ALICE MEMORIAL HOSPITAL, EASTBOURNE.—The annual report of this hospital for 1920 shows a deficit of nearly £5000. Notwithstanding 146 more patients than in the previous year, the annual subscriptions marked a decrease of £225, and a committee was appointed to go into the finances of the institution. The question of adopting a scheme for paying patients will probably be considered.

BRIGHTON PROVIDENT SCHEME.—Amongst the nine Brighton hospitals coöperating in the provident scheme for hospital benefits and additional medical services, propounded by Dr. Gordon Dill, is the Royal Alexandra Hospital for Sick Children. Speaking at the annual meeting of the governors of this institution on Feb. 21st Mr. R. P. Modera, chairman of the hospital, said the provident scheme in theory was ideal, but it was not yet certain how it would work in practice. It was in the nature of an insurance, and much would depend upon how it was taken up by the public. The committee, he said, were at first inclined to keep out of the scheme, which bristled with all sorts of difficulties; but since the whole future of voluntary hospitals was in a very dangerous position, the committee thought they ought to fall in line with all the hospitals in the town and give it a trial; they would treat it purely as an experiment. Mr. Modera said the hospital was also falling into line with the other institutions in Brighton in asking those responsible for in-patients to contribute what they could towards the cost of their maintenance while in the institution. That, he thought, was only fair, and involved no hardship. The doors of the hospital would never be closed to the needy poor. Where real poverty or hardship existed the cases would be admitted free, and if it was justifiable in other cases the minimum contribution of 7*s.* a week would be reduced.

Dr. Gordon Dill explained his scheme at a Brighton and Hove Rotary Club gathering on Feb. 23rd. He quoted figures showing that the cost of the maintenance of the nine coöperating hospitals was £52,000 a year, and that if the insured people in Brighton, Hove, and Preston alone became members of the scheme (£1 a year in the case of single persons; £1 10*s.* in the case of married couples; £2 for families, however large) they would provide an income more than equal to that sum.

EASTBOURNE EYE HOSPITAL.—The governors of the Eastbourne Eye Infirmary at their annual meeting on Feb. 22nd decided that the institution should henceforth be known as the Eastbourne Eye Hospital. Efforts are being made to find more suitable and commodious premises. New patients during the year 1920 numbered 702, and the in-patients numbered 30.

ROYAL SUSSEX COUNTY HOSPITAL.—On Jan. 3rd last there came into operation at the Royal Sussex County Hospital, Brighton, a scale of charges for both in-patients and out-patients towards their cost of treatment and maintenance. According to the chairman of the governors, Mr. C. R Scrase Dickins, the response has been most gratifying. At the annual court of governors on Feb. 24th he said they had met with great willingness on the part of the patients, and that at the present time they were getting from that source alone no less than £50 a week. Much satisfaction was expressed that, thanks in the main to special efforts on behalf of the hospital, a debit balance of £6000 had been converted into a credit balance of £17,000. A feature of the year's operations at the hospital was the increase in the number of massage cases, these cases marking an increase of no fewer than 6969. X ray cases increased by 1185, nearly double the number treated last year by this means.

THE RECENT OUTBREAK OF SMALL-POX IN BRISTOL. Dr. D. S. Davies, M.O.H. for Bristol, has issued a report on this outbreak, which has been traced to a mild attack contracted in December by a dock labourer, aged 29. He had been vaccinated in infancy (four marks); the attack was so mild that he continued work except for four days discharging cargoes on three ships at Avonmouth. Dr. Davies considers it probable that he contracted his attack from infected articles, as one of the vessels came from a Roumanian infected port. On Jan. 22nd a medical examination had revealed the presence under the thick skin of the sole of one undoubted deep-seated pustule. So far as is known, he communicated the disease only to intimate bedroom contacts: (1) His wife, aged 28, vaccinated in infancy, four good scars, sickened on Jan. 2nd, developed modified discrete eruption on Jan. 4th. Secondary fever. (2) His son, 5 months, unvaccinated, sickened on Jan. 2nd, eruption on Jan. 4th. Attack semi-confluent, becoming hæmorrhagic in pustular stage, died on Jan. 12th. Another vaccinated child of 2, though equally exposed remained well. The cases were not recognised and notified until Jan. 8th, when 11 visitors had had access to the house. Of these, four sickened and are now convalescent. The last case was removed to hospital on Jan. 18th, and no further cases have occurred.

CENTRAL COUNCIL FOR DISTRICT NURSING IN LONDON.—The annual meeting was held on Feb. 28th in the Board Room, Metropolitan Asylums Board, Victoria Embankment. The report of the Executive Committee chronicled the election of Mr. E. B. Turner as chairman and Dr. Scott Lidgett as vice-chairman of the committee. The inclusion amongst the patients visited of those who were unable to employ a private nurse, rather on account of lack of accommodation than from inability to pay the cost, had been considered by the Executive Council, and a memorandum suggesting the terms on which such visits might be arranged had been circulated (THE LANCET, 1920, p. 1180). The panel of emergency nurses, instituted in accordance with resolutions of the Council on Feb. 26th, 1918, and Feb. 26th, 1920, had proved to be of considerable usefulness to the various associations. The City Parochial Foundation had renewed their grant of £100 for the training of four district nurses as midwives. The Executive Council had been approached by the National Association for the Prevention of Tuberculosis and by the Lock Hospital in regard to the need for special training for district nurses, and had therefore decided to give special consideration to the question of the district training provided and required by the associations over and above the three years' training in hospital. The Council considered that the attention of the training schools for nurses should be drawn to the large amount of additional instruction needed before a fully trained nurse was equipped for district work, and recommended that the foregoing be communicated to the General Nursing Council for consideration in connexion with the training of nurses. On the question of salaries the Council recommended that it be a condition of a grant from the Council that the minimum salary of a resident nurse shall be not less than £63 clear, and of a non-resident nurse not less than £63 clear, over and above a reasonable allowance for board and lodging. Acknowledgment was made of grants and donations received, and a statement made of the amounts allotted to various district associations, and in view of the continually increasing cost of the nursing services it was resolved that the need for and desirability of appeal to the public for funds in aid of district nursing in London should be given consideration.

PROPRIETARY MEDICINES BILL.—Dr. Addison has stated his intention to reintroduce this Bill in a modified form during the present Parliamentary session.

LONDON HOSPITAL AND INSURANCE PATIENTS.—At a meeting of the Governors of the hospital, on March 2nd, Lord Knutsford announced the decision to discontinue treatment of insured persons unless their Approved Societies came to the financial aid of the hospital. This, he believed, they would agree to do in the near future.

INDUSTRIAL WELFARE.—The Duke of York attended the Industrial Conference held at the Mansion House, London, on March 2nd, in support of the industrial welfare movement. In a letter issued to the press the Duke of York speaks of this movement as one of the most valuable contributions toward the bringing about of understanding and harmony in industry.

THE Brighton Corporation on Feb. 24th decided to place the Royal Pavilion buildings at the disposal of the Balneological and Climatological Section of the Royal Society of Medicine for its annual meeting this summer. It was also decided to give facilities for the members to visit places of interest under the control of the corporation.

NORTHERN HOSPITAL, MANCHESTER.—In spite of applying £2100 of invested funds and treating as income £650 received from legacies, the Manchester Northern Hospital for Women and Children started the past year with a debt of £1600. A bazaar held last November realised £3000, and a gift of £2800 from the National Relief Fund leaves a balance in hand of £3700. This apparent prosperity is misleading, as last year was abnormal, and the fact remains that the dependable income fell short of the expenditure of £8180 by £2320.

# Appointments.

HUTT, C. W., M.A., M.D. Camb., D.P.H. Oxf., has been appointed Medical Officer of Health to the Borough of Holborn.

Certifying Surgeons under the Factory and Workshops Acts: MCDOUGALL, D., M.B., Ch.B. Glasg. (Kilbride); ROBERTSON, I. M., M.B., Ch.B. Glasg. (Strichen); PEARSON, R. W., M.B. Durh. (Arundel).

# Vacancies.

*For further information refer to the advertisement columns.*

*Beckenham Education Committee*—Dental O. £500.
*Birmingham and Midland Homœopathic Hospital.*—Res. H.S. £125.
*Bootle County Borough.*—Tuberc. O. and Deputy M.O.H. £750.
*Bristol Education Committee.*—Asst. Sch. M.O. £600.
*Bristol General Hospital.*—H.P.'s, H.S.'s, Cas. H.S. and Obstet. O. £175.
*Bristol Royal Infirmary.*—Hon. Registrar and Hon. Surg.
*Charing Cross Hospital, Agar-street, W.C.*—Surg. Registrar. £150.
*City of London Hospital for Diseases of the Chest, Victoria Park, E.*—H.P. £100.
*Derby, Derbyshire Royal Infirmary.*—Ophth. H.S. £200.
*Dunrossness Parish.*—M.O. and Vaccinator. £40.
*Ealing Borough.*—Asst. M.O.H. £500.
*East London Hospital for Children and Dispensary for Women, Shadwell, E.*—Anæsth. £50. Also Ophth. S.
*East Sussex County Mental Hospital, Hellingly.*—Sec. Asst. M.O. and Path. £450.
*Eastern Dispensary, Leman-street, E.*—P. and Ophth. S.
*Evelina Hospital for Children, Southwark, S.E.*—H.P. £160.
*General Lying-in Hospital, York-road, Lambeth, S.E.*—Res. M.O. £100.
*Glamorgan County Asylum, Bridgend.*—Jun. Asst. M.O. £415.
*Great Northern Central Hospital, Holloway, N.*—Two H.P.'s. £150.
*Greenwich, "Dreadnought" Hospital.*—H.S. £150.
*Herefordshire General Hospital.*—H.S. £200.
*Laboratories of Pathology and Public Health, 6, Harley-street.*—Asst. Path. £450.
*Leicester Royal Infirmary.*—H.P. £200.
*Lewisham Hospital.*—Consulting S. and Consulting P. £150. Sen. Asst. M.O. £500. Two Res. Asst. M.O.'s. £400.
*Liverpool, David Lewis Northern Hospital.*—Two H.P.'s. Three H.S.'s. £120.
*Liverpool Royal Children's Hospital, Myrtle-street.*—Two Res. H.P.'s and Two Res. H.S.'s. £90.
*Liverpool Royal Infirmary.*—H.P.'s., H.S.'s., and Sen. Cas. O. £60 each.
*Liverpool, Royal Southern Hospital.*—Two H.P.'s and three H.S.'s. £100 each.
*London County Council, Hammersmith School Treatment Centre.*—Eye S., Minor Ailment S., Ear and Throat S., Two Anæsth.'s. £80 each. Two Dental S.'s, £65.
*London Missionary Society.*—Surg., and P. and S. for Hospital Service, China.
*Maidstone, Kent County Mental Hospital.*—Asst. M.O. £350.
*Maldon Union.*—M.O. and Public Vaccinator. £107.
*Manchester Royal Infirmary, Central Branch, Roby-street, Manchester.*—Asst. M.O. £100.
*Margate, Royal Sea Bathing Hospital for Surgical Tuberculosis.*—Female S. £200
*Mildmay Mission Hospital, Austin-street, Bethnal Green, E.*—Gynæc., and Dent. S.
*Muktesar, India, Imperial Bacteriological (Veterinary) Laboratory.*—Director and First Bacteriologist. Rs. 1500 per mensem. Also Second Bacteriologist and Pathologist. Rs. 600 per mensem each.
*Newark Hospital and Dispensary.*—Res. H.S. £200.
*Newport, Mon., Royal Gwent Hospital.*—H.S. £200.
*Nottingham City Asylum.*—Sec. Asst. M.O. £400.
*Nottingham General Hospital.*—H.S. £200.
*Oldham Royal Infirmary.*—Third H.S. £200.
*Poplar Hospital for Accidents, Poplar.*—Asst. Res. S. £150.
*Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.*—Asst. Res. M.O. £60. Also Dist. Res. M.O. £80.
*Queen Mary's Hospital for the East End, Stratford, E.*—H.S. and H.P. £150 each.
*Rochester, Kent, St. Bartholomew's Hospital.*—Jun. Res. M.O. £200.
*Royal National Orthopædic Hospital, 234, Great Portland-street, W.*—Hon. Anæsth. £1 1s. per attendance.
*St. Bartholomew's Hospital Medical School.*—Chair of Anatomy. £900.
*Salford Royal Hospital.*—Res. Surg.O. £250. H.P. £200. H.S.'s, Orthop. Dept. and Genito-Urinary Dept. £150 each. Cas. H.S. £150. Anæsthetist. £50.
*Salisbury General Infirmary.*—H.S. £200.
*Samoan Medical Service.*—Three Jun. M.O.'s. £600.
*Sheffield Royal Hospital.*—Asst. Cas. O. £150.
*Sheffield Royal Infirmary.*—H.S. £150 Ophth. H.S. £150. Asst. Cas. O. £150.
*South Shields, Ingham Infirmary and South Shields and Westoe Dispensary.*—Sen. H.S. £225.
*Sunderland Royal Infirmary.*—Jun. H.S. £200.
*Tunbridge Wells General Hospital.*—H.S. £160.
*Tyne Port Sanitary Authority.*—Asst. M.O.H. £750.
*Wakefield, West Riding Asylum.*—Jun. Asst. M.O. £400.
*Western General Dispensary, Marylebone-road, N.W.*—Asst. Hon. Aural S.
*Western Ophthalmic Hospital, Marylebone-road, N.W.*—Non-Res. H.S. £150.
*West London Hospital, Hammersmith-road, W.*—H.P. and Two H.S. s. £50. Also Asst. Anæsth.
*West Riding County Council.*—Asst. M.O. at Cardigan Sanatorium, Carr Gate, near Wakefield. £500.
*Wigan County Borough.*—M.O.H. £850.
*Wigan Infirmary.*—Hon. P. and Asst. Hon. P.
*Wilts County Council.*—Female Asst. County M.O.H. and Asst. Sch. Med. Inspec. £500.
*Winchester, Royal Hampshire County Hospital.*—Hon. Physician in Ordinary.
*Wolverhampton and Staffordshire General Hospital.*—Hon. Specialist Ear, Nose, and Throat Dept. Also Res. Cas. S. £300.
*York Dispensary.*—Res. M.O. £250.
*York Retreat.*—Med. Supt. £800–£1000.

THE Home Secretary gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act, 1906, for the Sheriffdom of the Lothians and Peebles. Applications for the post should be addressed to the Private Secretary, Scottish Office, Whitehall, S.W.1, and should reach him not later than March 16th, 1921.

THE Chief Inspector of Factories announces the following vacant appointments:—Barton-on-Humber (Lincoln), Brading (Isle of Wight), Bromyard (Hereford), Wincanton (Somerset).

# Births, Marriages, and Deaths.

## BIRTHS.

COOPER.—On Feb. 23rd, the wife of Dr. R. M. Le Hunte Cooper, of Strathray-gardens, Eton-avenue, N. W., and Wimpole-street, W., of a daughter.

SCOTT.—On Feb. 21st, the wife of Eric A. Scott, M.R.C.S., L.R.C.P., 9, Harley-street, W., of a daughter.

SPENCER.—On Feb. 22nd, at a nursing home, Oxford, the wife of Gordon Winstanley Spencer, M.D., Mesopotamiam Health Service, of a daughter.

## MARRIAGES.

RYGATE—BEVEN.—On Feb. 26th, at Durrington Church, Salisbury, Captain J. R. Rygate, R.A.M.C., to Kathleen, daughter of the Rev. Sydney Beven, Brighton.

THE marriage arranged between Major H. Graeme Anderson, M.B.E., M.D., F.R.C.S., Surgical Consultant to the Royal Air Force, of 75, Harley-street, W., and Gladys, elder daughter of Charles Hood, of Hatch End, Middlesex, will take place on March 18th, at St. Columba's (Church of Scotland), Pont-street, S.W., at noon.

## DEATHS.

ABRAHAM.—On Feb. 23rd, at Marlborough-hill, St. John's Wood, N.W., Phineas Simon Abraham, M.D., F.R.C.S.I., &c., late of Harley-street, W., aged 74.

CAMERON.—On Feb. 27th, at Dublin, Sir Charles Alexander Cameron, C.B., M.D.R.U.I., F.R.C.P.I., F.R.C.S.I., D.P.H., in his 91st year.

LOMAS.—On Feb. 24th, at Pencaitland, Ernest Courtney Lomas, C.B., D.S.O., F.R.C.S. Edin., Surgeon-Captain, R.N. (retired), aged 56.

MOSSE.—On Feb. 25th, at Belvedere-terrace, Weymouth, Charles George Drummond Mosse, Lieutenant-Colonel (retired), R.A.M.C., F.R.C.S.I., and Ministry of Pensions, aged 63 years.

SEMON.—On March 1st, at Rignalls, Great Missenden, Bucks, Sir Felix Semon, K.C.V.O., M.D., F.R.C.P., aged 71.

TURNER.—Feb. 28th, at Oundle, Emma Beatrice, wife of Dr. B. R. Turner, Oundle, Northants.

WRENCH.—On Feb. 23rd, at Ireshopeburn, Wearhead, Co. Durham, Edward Branson Wrench, M.B., M.V.O., F.R.C.S., of Park Lodge, Baslow, Derbyshire, in his 57th year.

*N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

# Medical Diary.

## SOCIETIES.

**ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.**

*MEETINGS OF SECTIONS.*

**Tuesday, March 8th.**

SECTION OF PSYCHIATRY: at 5.30 P.M. (instead of 8.30 P.M.)
*Paper:*
Dr. Henry Devine: Study of Hallucinations in a Case of Schizophrenia.

**Thursday, March 10th.**

SECTION OF BALNEOLOGY AND CLIMATOLOGY: at 5.30 P.M.
*Discussion:*
On "The Place of Baths and Health Resorts in Gynæcology."
Members of the Section, with guests, will dine together at the Welbeck Palace Hotel, Welbeck-street, W., at 7 P.M. Those intending to be present are requested to send their names to Dr. C. F. Sonntag, 80A, Belsize Park-gardens, N.W.3, not later than the last post on March 10th.
OBSTETRICS AND GYNÆCOLOGY: Members of this Section are cordially invited to attend this meeting.

**Thursday, March 10th, and Friday, March 11th.**

SECTION OF NEUROLOGY } at 8.30 P.M. (Cases on
SECTION OF OPHTHALMOLOGY } March 10th at 8 P.M.)
*Discussion:*
On "Ocular Palsies," to be opened by Dr. Gordon Holmes and Mr. Leslie Paton, and continued by Mr. J. B. Lawford, Mr. M. S. Mayou, Mr. N. Bishop Harman, Mr. Foster Moore, Mr. W. H. McMullen, Mr. M. L. Hine, Dr. S. A. K. Wilson, and others.

**Friday, March 11th.**

CLINICAL SECTION: at 5.30 P.M. (Cases at 5 P.M.)
*Exhibition of Cases.*
Will Members wishing to exhibit cases please notify Mr. R. P. Rowlands, 12, Queen Anne-street, W. 1.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.
MONDAY, March 7th.—9 P.M., Lettsomian Lecture (III.):—Mr. G. E. Gask: Surgery of the Chest and Pleura.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.
MONDAY, March 7th.—8 P.M., Cantor Lecture:—Major G. W. C. Kaye: X Rays and their Industrial Applications. (I.)

HUNTERIAN SOCIETY, at Sion College, Embankment, E.C.
WEDNESDAY, March 9th.—9 P.M., Papers:—Mr. H. T. Gray: Obscure Intestinal Colic.—Dr. A. R. Friel: The Use of the Continuous Electric Current in Treatment.

BIRMINGHAM MEDICAL PSYCHOLOGICAL SOCIETY.
WEDNESDAY, March 9th.—4.15 P.M., Paper:—Dr. G. Gordon: Amnesia.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
There will be Daily Demonstrations in the Wards and Out-patient Department by the Staff of the West London Hospital at 10, 11 A.M., and 12 noon, and 2 P.M. All the Special Departments of the Hospital will be used for teaching purposes. The following lectures will be delivered during the week:—
MONDAY, March 7th.—5 P.M., Dr. G. Stewart: Spinal Tumours.
TUESDAY.—5 P.M., Dr. Pernet: The Alimentary Tract and Morbid Skin Manifestations.
WEDNESDAY.—5 P.M., Mr. Gibb: Glaucoma.
THURSDAY.—5 P.M., Dr. B. Spilsbury: Arsenical Poisoning.
FRIDAY.—5 P.M., Mr. Steadman: Dental Sepsis in Relation to the Alimentary Tract.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.
MEDICAL SCHOOL.
MONDAY, March 7th.—2 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Lecture:—Mr. Scott: Disturbances of the Vestibular System. (II.)
TUESDAY, March 8th.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Lecture:—Dr. Risien Russell: Syphilis of the Nervous System. (I.)
THURSDAY, March 10th.—2 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Lecture:—Dr. Gordon Holmes: Muscular Atrophies. (II.)
FRIDAY, March 11th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Dr. Russell J. Reynolds: X Ray Demonstrations of Cases.
Fee for Post-Graduate Course £7 7s. C. M. HINDS HOWELL, Dean

MIDDLESEX HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).
TUESDAY, March 8th,—3 P.M., Emeritus Lectures:—Dr. W. McC. Wanklyn: The Future of the Medical Profession.
THURSDAY.—3 P.M., Emeritus Lecture:—Sir Alfred Pearce Gould: Surgery, a Progressive Science: the Latest Word is not the Last Word.
FRIDAY.—3 P.M., Sir James Kingston Fowler: The Treatment of Tuberculosis.

KING'S COLLEGE (DEPARTMENT OF SCIENCE), Strand.
Nine Lectures on Problems of Modern Science.
WEDNESDAY, March 9th.—5.15 P.M., Lecture (VIII.):—Prof. W. D. Halliburton: Physiology.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, March 10th.—4 P.M., Lecture:—Dr. C. B. Heald: Muscular Defects in Poliomyelitis.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W.
MONDAY, March 7th.—5.30 P.M., Post-Graduate Lecture:—Dr. J. Parkinson: Dropsy.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.
THURSDAY, March 10th.—6 P.M., Chesterfield Lecture:—Dr. K. Sibley: Electrical Treatments. Diathermy and High Frequency.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, W.
TUESDAY, March 8th.—3 P.M., Lecture:—Prof. A. Keith: Darwin's Theory of Man's Origin.
THURSDAY.—3 P.M., Dr. G. C. Simpson: Meteorology of the Antarctic.
FRIDAY.—9 P.M., Dr. J. Freeman: Medical Idiosyncrasies.
SATURDAY.—3 P.M., Lecture (II.): Sir Ernest Rutherford: Electricity and Matter.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, March 8th.—4.30 P.M., Lecture:—Mr. H. H. Rayner: Surgical Disorders of Infancy and Early Childhood.

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.
THURSDAY, March 10th.—4.30 P.M., Dr. Jenkins: The Examination of Sputum. (At Salford Royal Hospital.)

ST. MARY'S HOSPITALS, MANCHESTER, POST-GRADUATE LECTURE, at Whitworth-street West Branch.
FRIDAY, March 11th.—4.30 P.M., Dr. Ward: Dyspepsia in Infancy.

MANCHESTER BABIES' HOSPITAL.
Post-Graduate Lectures and Demonstrations in the Onward Buildings, Deansgate, or at the Hospital, Slade lane.
SATURDAY, March 12th.—3.30 P.M., Dr. Chisholm: Demonstration of Food Preparations with Comments on their Therapeutic Value. (At the Babies' Hospital.)

## Communications, Letters, &c., to the Editor have been received from—

A.—Assurance Medical Society, Lond., Hon. Sec. of; American Public Health Association, Boston, Sec. of; Capt. M. Anupsingh, I.M.S.; Dr. A. Abrahams, Lond.
B.—Mr. H. Brown, Lond.; Dr. J. W. Bigger, Dublin; Mr. E. C. Bevers, Oxford; Dr. A. Blackhall-Morison, Lond.; Dr. T. W. Barry, Lond.; Dr. G. Bidou, Paris; Mr. A. S. B. Bankart, Lond.; Dr. B. Blacklock, Liverpool; Mr. J. Burns, Edinburgh; Mrs. C. Brereton, Lond.; Mr. J. Bocarro, Kurduvada.
C.—Dr. J. B. Christopherson, Lond.; Dr. S. D. Clippingdale, Lond.; Central Midwives Board for Ireland, Dublin; Crown Agents for the Colonies, Lond., Chief Engineer of; Central Council for District Nursing, in London, Hon. Secs. of; Cambridge University Press, Lond., Manager of; Colston University Research Society, Hon. Sec. of; Combined Universities' Conservative and Unionist Association, Lond.; *Canada*, Lond., Editor of.
D.—Miss L. Davies, Lond.; Dr. D. Dougal, Manchester; Dr. D. S. Davies, Bristol.
E.—Dr. I. Eban, Lond.; Mr. R. C. Elmslie, Lond.
F.—Mr. W. G. Frye, Midhurst; Mr. W. R. Fairbrother, Lond.
G.—Mr. H. Grover, Lond.; Dr. W. E. Gye, Lond.
H.—Home Office, Lond.; Dr. I. Harris, Liverpool; Hunterian Society, Lond.; Major W. E. Home, Lond.; Prof. W. D. Halliburton, Lond.
I.—Incorporated Association of Certifying Factory Surgeons, Lond.; *Indian and Eastern Druggist*, Lond., Editor of; Illuminating Engineering Society, Lond.
K.—Dr. W. H. King, Fowey; Lt.-Col. J. Kynaston, R.A.M.C.; Mr. C. Körner, Leipzig.
L.—London and Counties Medical Protection Society, Lond.; Dr. O. Langmead, Lond.; Mr. R. Lake, Lond.; London Hospital Medical College; Mr. E. M. Little, Lond.
M.—Dr. E. D. Macnamara, Lond.; Metropolitan Life Insurance Co., New York; Metropolitan Water Board, Lond.; Dr. R. Myers, Lond.; Dr. J. J. Moren, Louisville; Sir J. Mackenzie, St. Andrews; Ministry of Health, Lond.; Mr. S. A. Mann, Lond.; Medical Officers of Schools Association, Hon. Sec. of; Mr. H. W. G. MacLeod, Lond.; Dr. W. C. Morton, Leeds.
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S.—Prof. W. Stirling, Manchester; Scientific and Industrial Research Department, Lond.; Dr. A. L. Smith, Lond.; Very Rev. Canon Sprankling, Weybridge; St. Mary's Hospitals, Manchester; Lt.-Col. J. H. Stanley, Lond.; Mr. F. B. Smith, Harrogate; Dr. J. Sorley, Lond.; Mrs. H. Schuster, Lond.
T.—Dr. G. L. Thornton, Exmouth; Dr. D. Triantaphyllos, Athens; Technical College, Bradford, Principal of; Mr. G. M. Thomas, Lond.; Miss Turner, Stoke Green.
V.—Miss E. D. Vickers, Lond.; Dr. F. Van Allen, Madura.
W.—Sir G. Woodhead, Cambridge; Dr. F. J. Waldo, Lond.; Dr. S. Welsh, Lond.; Dr. E. Ward, Paignton; Dr. J. W. T. Walker, Lond.
Y.—Dr. A. G. Yates, Sheffield.
Z.—Dr. S. S. Zilva, Lond.

WESTERN OPHTHALMIC HOSPITAL.—The monthly clinical meeting was held on Feb. 23rd, when the following cases were shown: (1) Congenital Dislocation of the Lenses in High Myopia; (2) Retinitis Pigmentosa; (3) Intramarginal Cupping of the Discs; (4) Gumma of the Iris, by Dr. Hugh Thompson; (5) Keratitis Neuralgica, by Mr. Cole Marshall; (6) Intramarginal Cupping of the Discs, by Mr. W. L. Holyoak; (7) Early Choroiditis at the Macula; (8) Specific Retino-choroiditis; (9) Optic Atrophy in Tabes Dorsalis; (10) Tubercular Choroiditis; (11) Syphilitic Retino-choroiditis Resembling Retinitis Pigmentosa, by Mr. A. Rugg-Gunn. These meetings are held at 5 P.M. on the fourth Wednesday of each month, and medical practitioners and others interested are cordially invited to attend. Any further information may be obtained from Mr. A. Rugg-Gunn, secretary of the Medical Committee, 9, Wimpole-street, London, W.1.

# Notes, Short Comments, and Answers to Correspondents.

## THE IMPORTANCE OF BIOLOGY.

LECTURING on Problems of Modern Science at King's College, London, on Feb. 23rd, Professor A. Dendy said that scientific knowledge of all kinds had been accumulating during the past century at an altogether unprecedented rate, and it was necessary that the heap should be organised in some rational manner. Biology had much in common with chemistry and physics, and it might be regarded as a sort of super-chemistry and super-physics, though the living organism, taken as a whole, was something more than a mere physical and chemical machine. In this fact lay the justification for separating biology from chemistry and physics and in regarding it as one of the cardinal sciences. The general divisions of biology adopted by our universities were on the whole justified, but had many disadvantages, and a strictly logical foundation could hardly be claimed for the system of classification. The anatomists and physiologists of our medical schools had been seriously handicapped by taking too narrow a view of the wide relationships of biological science.

*Progress of Biological Science.*

Pleading for a wider interpretation of the subject Professor Dendy suggested a scheme under the main headings of pure biology, experimental biology, philosophical biology, and applied biology, and passed in rapid review the work which would fall under the main headings and under their many subdivisions. The descriptive and systematic work which belonged to pure biology, he said, was necessary to the experimental biologist who could not carry out his investigations until he knew with what material he had to deal, while the philosophical biologist had to rely on both branches. It was in the domain of cytology that much of the most important progress in biological science had lately taken place, and its study had become a necessary adjunct to a right understanding of heredity. In this connexion the lecturer mentioned the work of Professor Morgan and his colleagues in America in regard to the chromosomes, and maintained that a knowledge of embryology must still be regarded as an indispensable part of the equipment of the student of comparative anatomy and organic evolution. This was still more true of palæontology, in which great advances had been made in recent years, and, whether with Huxley we derived the human stock from some ape-like form or, with Wood Jones, placed it further back, it made no difference to the belief that man was one final product in one direction of organic evolution. We could safely trust the labours of the palæontologist to fill in more completely the gaps in our knowledge. Reverting to the work of the systematologist the lecturer said that not only now, but still more in the future, there would be urgent need of some kind of museum training as well as for international coöperation.

*Biology and Medicine.*

Experimental biology opened up a vast field and some of the individual problems involved would be sufficient to occupy a man during his lifetime. Physiology had long been recognised as of primary importance in the university curriculum, and although regarded as a distinct science it clearly overlapped almost every other department of biology. It was a vast subject which required subdivision before it could be adequately treated. General physiology of plants and animals dealt with the complete vital activities of individuals, and biochemistry and biophysics formed the connecting links with the sister sciences, bringing the living organisms into contact, so to speak, with the inanimate world. Physiology of the special functions in any scheme would probably have to receive special treatment. Experimental psychology, including what was commonly called the behaviour of animals, was a branch of physiology at present much studied and was the chief field of contest between the mechanist and the vitalist. The study of animal behaviour merged almost imperceptibly into experimental morphology and embryology. Heredity concerned itself with the unravellings of the connexions which exist between parent and offspring, and the studies of Mendel had been fruitful in results of practical importance. The Mendelian factors whose existence had been demonstrated by the genetist had not yet been identified as entities in the germ cells, but the American school had localised them with great probability in the chromosomes. The truth appeared to be that the Mendelian factors were only modifying agents. There were probably no special factors, for example, that determined whether the normal human being should have a nose or no nose, though they might decide whether the nose should be of one shape or another, just as there were factors which determined the colour of the eyes. The so-called Mendelian factors which modified organisms might be of a chemical nature, since a perfectly definite result was got from a perfectly definite stimulus. Investigations in the study of the blood had developed almost into a new science which was really a part of biochemistry and biophysics. An injection of the spermatozoa of one animal into the blood stream of another animal of a distinct species produced in the blood an antibody which caused the destruction of foreign bodies. By injecting a solution of the lens from the eye of a rabbit into the blood of fowls a lens-sensitised serum was produced capable of dissolving lens tissue. This serum injected into pregnant rabbits produced animals with defective lenses, and this defect was inherited by at least six generations. Moreover, it had been shown that the effect could be produced through the male rabbit alone.

In conclusion, Professor Dendy said that the question as to how far applied science should form part of the University curriculum was a matter for discussion, but everyone would agree that both pure and applied biology must remain in touch with each other. Medicine, surgery, parasitology, and other sciences were dependent upon biology, and pure science must be regarded as the root and applied science as the fruit of the tree. If the root were starved the crop of fruit would not be forthcoming.

## FISHERMEN'S DISEASES.

AT a recent meeting of the Norfolk and Norwich Medico-Chirurgical Society, held at the Norfolk and Norwich Hospital, Dr. H. Muir Evans had much of interest to say on injuries and diseases peculiar to fishermen. Lantern slides showed the general appearance of several poisonous fishes, including the dog-fish, the sting ray, and the greater and lesser weever; also the microscopical features of the poison glands of each species from sections cut by the author and photographed by Dr. D. H. Hutchinson, of Lowestoft.

The injuries produced by the prick or sting of fish armed with spines are usually, Dr. Evans said, the result of an unpremeditated contact with the greater or the lesser weever, which possesses a perfect double-grooved exploring needle on either gill cover. Each grooved spine is covered by a movable skin. At the root of the spine is a definite poison gland, and when alarmed the fish erects its gill cover and bends itself round, driving the poisoned spine into any adjacent body, which at once receives some grumous drops of a highly poisonous nature There are lesser poison organs in each spine of the dorsal fin. The burning pain that ensues is so great that men will attempt to throw themselves overboard, or will hammer the affected part with a thole pin against the bulwarks. The pain lasts several hours and is associated with immediate swelling of the affected limb; a certain amount of paralysis may affect the limb temporarily. The swelling subsides in a few hours or may go on to phlegmonous inflammation with local gangrene around the site of injury.

*The Nature of Fish Venom.*

The study of snake venoms has shown the presence of different toxins, one acting on nerve tissues, a neurotoxin, another on red blood cells, a hæmolysin, another on white blood cells, a leucotoxin, and another on the epithelial lining of blood-vessels. It is possible to fix a neurotoxin to nerve cells in vitro, the hæmolysin remaining in solution, and vice versa. Weever venom contains a neurotoxin, a hæmolysin, and a leucotoxin. The hæmolytic constituent of weever venom differs, however, from most snake venoms in that it acts directly on washed red corpuscles—that is to say, without the presence of serum. This statement conflicts with that of certain French workers, but my experiments were made with fresh poison, whereas they made use of filtered glycerine extracts. The French view is that venoms can only cause solution of blood cells in the presence of a heated serum, while a normal serum inhibits the action. To complete the analogy between this and other venoms, Briot has been able to immunise dogs and rabbits by repeated local injections of the venom, so as to render them insusceptible to many times the lethal dose of poison injected intravenously. As early as 1879 Bottard recorded an experiment in which he had injected a dog with the venom, and after the slough thus produced had separated, 16 days later, he put some drops of the venom into the eye of the same dog without producing any effect.

Experiments I have made on the paralytic effect of the venom on white blood corpuscles show a marked diminution in the phagocytic action of the leucocytes. Secondary septic inflammations frequently follow the sting of these fish, a result which shows how readily the barrier of phagocytosis may be broken down to admit pathogenic organisms from the dirty skin.

*Treatment of Fish "Sting."*

The various empirical methods of treatment are worthy of study. For example, the injury being called a sting, on

analogy with the acid ant's sting ammonia is presumed to counteract the poison. In the islands of Mauritius and Réunion, where a similar stinging fish, the Synancia, frequently injures the feet of fishermen, the natives employ the leaves and seeds of a species of Datura which grows in abundance on the dry sand of the shore, and find it gives relief, in the same way as a person stung by a nettle flies to a dock-leaf. But among the plants employed in an empirical way to cure the prick made by the fish the seed of *Abrus precatorius* seems, according to Bottard, to have the virtue of a specific. We are familiar with abrus or jequirity seeds as a remedy for certain chronic eye diseases, while a toxin abrin derived from it has been shown to possess the characters of the toxins of diphtheria and tetanus, dissolving red blood cells and possessing also a neurotoxic effect. Test-tube experiments show that abrus has an inhibiting effect on hæmolysis by weever venom.

Of local methods of treatment the most frequent is to plunge the part into boiling vinegar; another is to hold the limb over the funnel of the boiler which, in a smack, drives the donkey engine. A third is to apply heat vicariously by throwing the offending weever on the fire. Sometimes the sufferer soaks a piece of brown paper in vinegar, allows it to dry, and, wrapping the paper round the finger, applies a light, letting the paper smoulder until the heat becomes unbearable. Another treatment consists in cutting out the fish's liver and applying it to the wound. Here we are again approaching scientific method. Serpent's bile appears to be an antidote to serpent's venom, and a preparation of snake's liver is of value in the treatment, not only of snake-bite, but also of some disease toxins, as of tetanus and diphtheria. Possibly the effect of the liver is due to cholesterin. Cases of tetanus have been successfully treated with injections of cholesterin, and it has been established that cholesterin inhibits hæmolysis by cobra venom (Preston Keyes) and arachnolysin.

As with snake venoms, potassium permanganate, chloride of lime, and chloride of gold destroy the venom rapidly, and I have suggested that all smacks and drifters should be provided with a Lauder Brunton snake-bite lancet (which at one end contains pot. permang. crystals), so that a really efficient remedy may be at hand.

*Jelly-fish Stings and Water Boils.*

In the summer voyages the drift fishermen get their nets full of jelly-fish, and the sting frequently causes burning pain followed the next day by intense itching. From the tentacles of actiniæ a toxin has been isolated, thalassine, soluble in water and alcohol but insoluble in ether, which produces intense itching. The eyes and nose of those mending the dry nets after summer fishing are often affected, and this is, so far as I know, not described in any work. It would seem as if the dry toxin of the jelly-fish becomes mixed with the dust from the nets, so that the fishermen are frequently unable to mend the nets on account of the sneezing and lacrymation which the handling of them produces. It would be interesting to collect the dust from these nets and extract the toxin which they no doubt contain.

Finally, I must mention water boils, occurring on the forearm of fishermen and sometimes extending up to the elbow, but mostly to be found over the lower ends of the radial and ulnar borders of the arm. These boils begin as pustules, but may extend and form large suppurating areas of half to one inch in diameter. No doubt they are connected with the rubbing of the edge of their oilies, wet with sea-water and all the dirt of the fisherman's calling. They are most frequent in the autumn and winter. They cause many weeks' incapacity to the men, when they say their blood is out of order. I have examined the pus from these boils and find it in all cases to give a pure culture of *S. pyogenes aureus*. In severe cases I have given injections of vaccine with good results. The prevention of infection from one fisherman to another is also important.

## SIR ASTLEY COOPER.

*To the Editor of* THE LANCET.

SIR,—You have recently published a justly laudatory article upon Sir Astley Cooper. It comes as a surprise, therefore, to find the following paragraph in Samuel Smiles's "Life of George Stephenson," the celebrated engineer, when he was engaged in constructing the London and Birmingham Railway: "Sir Astley Cooper, the eminent surgeon, near whose estate at Hemel Hempstead the railway would pass, was one of the most active opponents to the measure, and a deputation of the directors one day called upon him for the purpose of mitigating his opposition. They found a courtly old gentleman, of highly dignified manners and appearance. The deputation explained to him their project and he politely heard them out: but Sir Astley was not to be conciliated. 'The scheme is preposterous and absurd,' said he, 'from beginning to end. You are entering upon an enormous undertaking of which you know nothing. Then proposing to destroy property, cutting up our estates in all directions! Why, gentlemen, if this sort of thing be permitted to go on, you will, in a very few years, destroy the *noblesse!*' The deputation retired disgusted, one of them bitterly remarking after they had left—'Well it is really provoking to find one who was made a "Sir" for cutting a wen out of George IV.'s neck charging us with destroying the noblesse because we propose to confer upon him and his neighbourhood the benefits of a railway!'"

I am, Sir, yours faithfully,

Holland Park-avenue, Feb. 26th, 1921. S. D. CLIPPINGDALE.

## A HYGIENIC TELEPHONE MOUTHPIECE.

Mr. Archibald T. Hutchinson, of 67, Burt-terrace, Gateshead-on-Tyne, has sent us a specimen of a telephone mouthpiece, which is used by the Newcastle-on-Tyne Electric Supply Company. Made of a wax-like substance impregnated with an antiseptic, it is simple in construction and takes the form of a movable lining to the fixed mouthpiece. The appliance is said to last for some two or three months before requiring renewal. The creasote-like odour of the antiseptic makes the mouthpiece pleasant to use, while there is no obstruction to the sound of the voice.

## THE CONTENTS OF ARTIFICIAL PEARLS.

*To the Editor of* THE LANCET.

SIR,—Professor A. J. Hall last week gave an interesting case of local dermatitis apparently determined by the wearing of an artificial pearl necklace. He does not mention whether the contents of the beads were analysed. Blown pearls usually consist of globules of glass coated on the inside with the so-called oriental pearl essence, or *essence d'orient*. This is a liquor prepared from the scales of various cyprinoid and clupeoid fishes, some of which are popularly known as whitings, as the bleak, or ablette in French; the scales give the brilliant iridescence to the artificial pearls. The scales are rubbed down in a mortar with fresh water and strained. Ammonia is added to prevent decomposition and to aid in coating the pearls. The rest is white wax or alabaster, but parchment-glue, isinglass, or mucilage is also used. Sometimes hydrofluoric acid and oxide of tin are employed in preparing the glass. The *ablette* used to be plentiful in the Seine. A Frenchman named Jannin is believed to have first invented the manufacture of artificial pearls about 1680. I am, Sir, yours faithfully,

OYSTER.

"*Intestinal Disinfection.*"—The publishers of this brochure are the Universal Medical Periodicals, Ltd., of 36, White-friars-street, London, E.C.

*The Langham Telephone Exchange.*—After 2 P.M. on Saturday, March 5th, the telephone number of the office of the General Medical Council will be Langham 2500.

*Common Sense.*—It is no longer possible for a man to take his stand unchallenged on the position given him by belonging to "one of the three learned professions." Our correspondent's communication would lead to immediate contradiction.

## BOOKS, ETC., RECEIVED.

BALE, JOHN, SONS, AND DANIELSSON, London.
- A Study in the Epidemiology of Tuberculosis, with especial reference to Tuberculosis of the Tropics and of the Negro Race. By G. E. Bushnell, M.D. Pp. 221. 20*s*.
- Manual for Health Visitors and Infant Welfare Workers. Edited by Mrs. Enid Eve. Pp. 194. 10*s*. 6*d*.
- Six Papers by Lord Lister, with a short Biography and Explanatory Notes. By Sir Rickman J. Godlee, Bart., K.C.V.O. Pp. 194. 10*s*.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.
- Orthopædic Surgery of Injuries. By Various Authors. Edited by Sir Robert Jones, K.B.E., C.B., F.R.C.S. Vol. I., pp. 540; Vol. II., pp. 692. £4 4*s*. the set.
- The Early Diagnosis of Tubercle. By Clive Riviere, M.D. 3rd ed. Pp. 318. 15*s*.


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